The OFFICIAL Amstrad Magazine

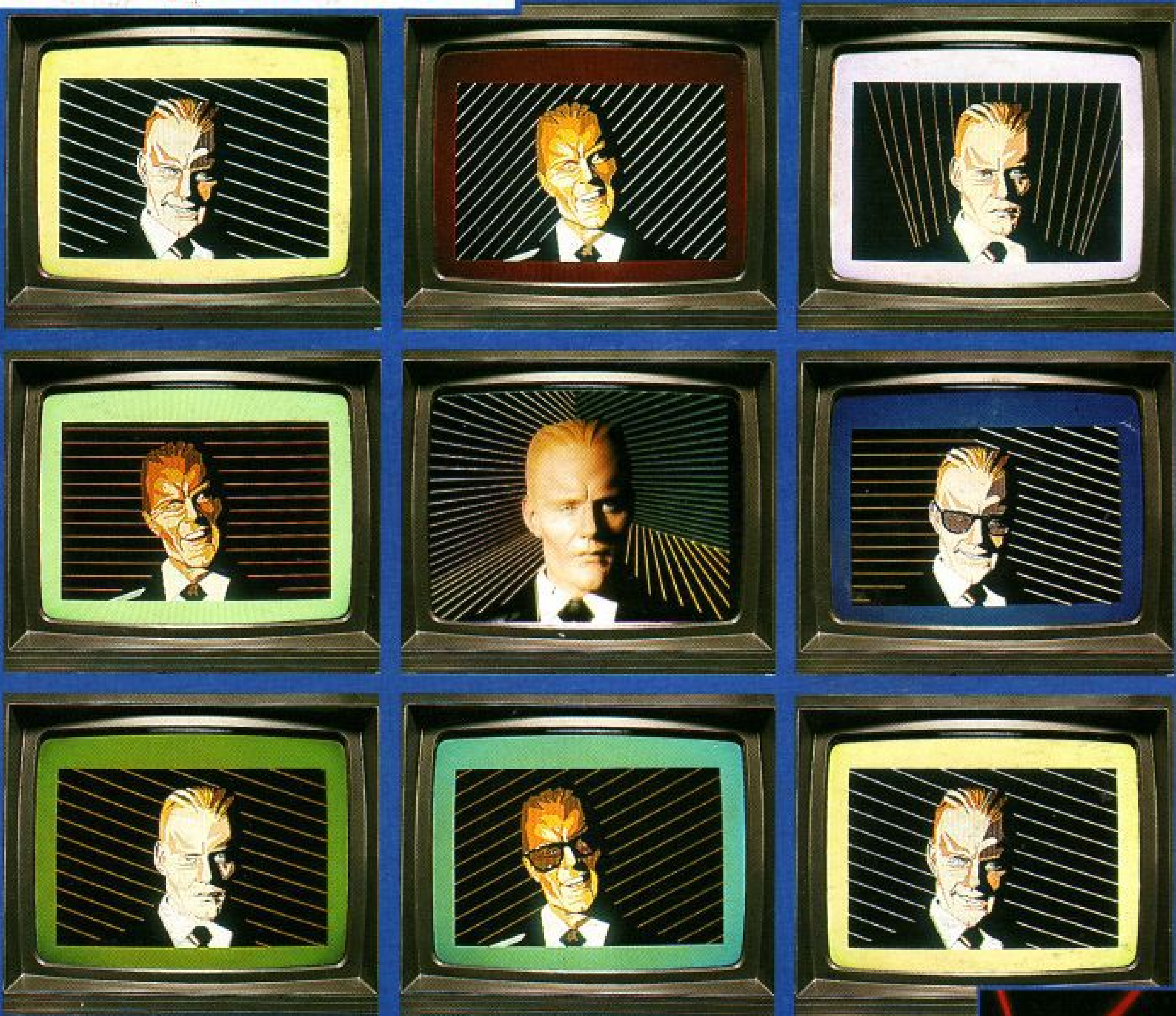
May 1986 £1.00

AMSTRAD COMPUTER USER

AUS $3.95 recommended NZ $4.95

M-M-Max Headroom Game Preview

Teletext Adaptor on Test



Joystick Jamboree



Plus Spindizzy Pokes, Reviews, Listings and Much More

Inside: PCW 8512 Full Review



MOON CRESTA
OFFICIAL LICENCE FROM NICHIBUTSU
WIN AN ACTUAL MOON CRESTA ARCADE MACHINE
PLUS HUNDREDS OF POSTERS
MCX1
MCX2
MCX3
TRIP TO THE SPACE WAR!
THE CLASSIC MOON CRESTA MANUFACTURED UNDER EXCLUSIVE LICENCE
AMSTRAD
DISC £12.95 CASSETTE £7.95
TRADE AND CREDIT CARD ORDERS TELEPHONE (0734) 591678
INCENTIVE
54 London Street, Reading RG14SQ
PRIORITY ORDER FORM Please rush me the titles as indicated below:
MOON CRESTA - Cassette £7.95 MOON CRESTA - Disc £12.95
Graphic Adventure Creator - Cassette £22.95 Graphic Adventure Creator - Disc £27.95
---FOR ALL AMSTRAD CPC COMPUTERS---
I enclose cheque/PO for £........ or by credit card no:
Name/Address

CONTENTS

REGULARS

FEATURES

COMPETITION

OFFERS

REVIEWS

ABC

AMSTRAD COMPUTER USER

169 King's Road, Brentwood, Essex CM14 4EF.
Telephone: 0277-234434. Telecom Gold: 72:MAG012

Editor: Simon Rockman
Advertisement Manager: Jane Nolan

The OFFICIAL magazine for users of Amstrad computers

News trade distribution: Europress Sales & Distribution Ltd, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

Nightingale Does It Better!



Communicating with the outside world can present its own special problems. Fortunately help is at hand for Amstrad users in the form of Nightingale and Commstar.

The Nightingale modem has become the standard by which others are judged. Combining simplicity of use with true multi-baud rate operation, Nightingale can provide access to both Viewdata (1200/75 & 75/1200 baud) and full duplex (300/300 baud) systems.



Commstar is **the** communications software and is now available for the Amstrad micro. Commstar is a combination of powerful Viewdata and Terminal communications programs providing full telesoftware downloading facilities. It is fully approved by Viewfax and features window menus, a full eight colours, it can be used under C/PM and is fully compatible with the Amsoft RS232 standard.

Nightingale and Commstar for use on the Amstrad CPC 464, 664, and 6128 are available direct from Pace or from good dealers everywhere.

APPROVED for use with telecommunication systems run by British Telecommunications in accordance with the conditions in the instructions for use.
S/2592/3/E/500065

Nightingale Modem £119.00 Commstar on disc £29.57
Nightingale, Commstar (on ROM), plus Serial Interface £150.00

Also available separately are the Terminal (Honeyterm), and Viewdata (Honeyview) programs from Commstar at £19.95 each.

Please add carriage and V.A.T. to the above prices. P & P (U.K.): £0.75 with Nightingale £2.50.

Comprehensive fact sheets are available for these and other Pace products.

PACE

PACE Micro Technology
Juniper View, Allerton Road, Bradford, West Yorkshire.
Tel. 0274 488211 Telex No. 51338
Prestel Mailbox No. 274 729306
Telecom Gold Mailbox No. PCE 001
Int. Tel. No. +44 274 488211

Access VISA

Rated best Modem and Software by ***Amstrad Computer User***

User News...

Cheap games on disc

Ambyte have a solution to constant problems faced by 6128 owners, the lack of games software on disc. Even if you do find the title you want it is bound to be expensive, it costs a software house more to copy a disc than it does to buy and copy a tape. On top of that blank discs are over 15 times the price of blank tapes.

One solution is a compilation disc, the excellent Working Backwards disc from Design Design is the best example, but you are likely to have already got some of the games. No what you need is a way to choose the games that appear on a compilation disc.

Ambyte will let you do just this. They have a big hard disc with all the best games sitting there just waiting to be put on to a 3 inch disc. All you need to do is decide which games you want, send them the same amount of money as you would for a tape, and they will put all the games you want on as few discs as are needed to hold all that data.

There is a catch – you must spend at least £15, but then that is only the price of two tape-based games.

When you get your Ambyte disc it will have a menu, telling you which games are on the disc and your name, so that if you manage to crack the very tough protection you can be caught when you dish out copies to your friends. There may even be a code hidden on the disc in case you get past that one.

Software houses need to trust Ambyte, and to produce the programs within quite a tight specification but already some big names have joined the scheme. They include Design Design, Lothlorien, Gremlin Graphics, Kuma, CCS, Britannia, Firebird, US Gold, CRL, Mastertronic, Mikro Gen, PSS, Palace, Martech and Mirrorsoft.

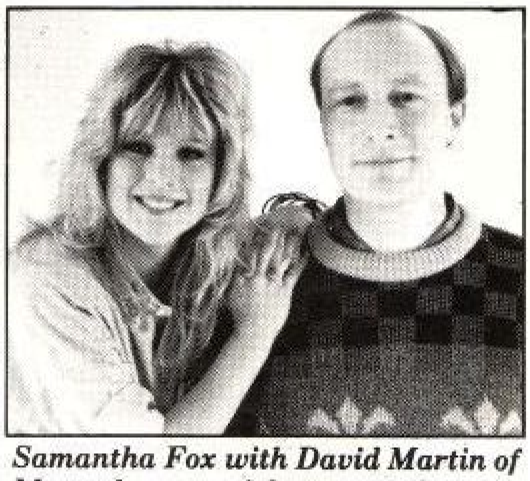
For more details call Ambyte on 0277 220573. Why Ambyte? Well the company which was in the building before was Ambit, so Ambyte is eight times better.

Amstrad adds spice to Sagesoft's markets

Sagesoft claim to be the leading supplier of professional and accounting software in the UK and it's all because of Amstrad. Sage have made sales worth almost £1 million in three months, in the main packages for the Amstrad.

They claim 7,333 accounting modules shipped during February, of which 6,755 were Amstrad accounting software packages. Chit Chat, a comms package for the PCW 8256, sold 771 units in the first three weeks after its launch in February.

Sagesoft have repackaged their existing software to distinguish their Amstrad range from other personal computer business software and they have found that interest in the Amstrad software has been a good advertisement for them. Managing director David Goldman says: "Sales of our Amstrad business software have had a knock-on effect by boosting sales of our other product lines".



Samantha Fox with David Martin of Martech, one of her greatest supporters

Sam gets into pixels

Martech have announced a strip poker game featuring digitised pictures of Samantha Fox (19 approx). This news item was a lot longer but we deleted all the sexist remarks and double meanings.

Oo-ar-oo-ar-oo-arrh

Tum te tum te tum. Computer owning fans of the Archers, Radio 4's famous farming soap opera, will be pleased to hear that there is to be an adventure game of the series. Due out in the autumn, the game is being written by Level 9 and William Smethurst, editor of the Ambridge serial.

Also to be released in the late summer, The Growing Pains of Adrian Mole. This is the sequel to the successful Secret Diaries. Both games are published by Mosaic Publishing who also promise two more titles for the summer. These are the Snow Queen and the Story of the Amulet.

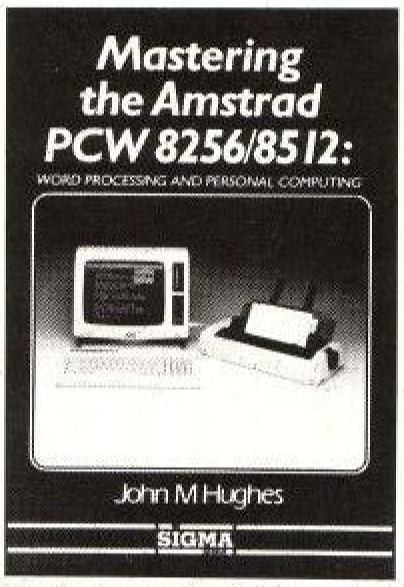
Citizen again

Citizen have announced a new printer called the LSP-10. This is a 120 cps dot matrix printer similar in its features to the MSP range (the MSP-10 was previously reviewed in ACU January).

The LSP-10 has a 25 cps, letter quality, mode, tractor feed and 4k buffer as standard. It is compatible with Epson and IBM and has an optional cut sheet feeder. The LSP-10 will be available for £255 from appointed Citizen distributors and dealers in May. Does this mean they are available from your local jewellers?

First book for the 8512

Sigma Press have been very quick off the mark with what must be the first independent book available for users of the PCW 8512 and 8256. Only a week after the press announcement of Fat Joyce, Sigma have announced "Mastering the Amstrad PCW 8256/8512", by John M. Hughes, a tutorial guide to word processing and using LocoScript. The book also goes into using CP/M and a number of the classic software packages. Price is £8.95 and it should be available now.



Sigma have the 8512 covered

Racer spins off!

Eeerch, screech, crash! Racer, our listing for March turned out to be a non-runner due to a number of mishaps on the way to the printers. However, if you give it a quick pit stop and make the following changes it should be possible to get it running again.

Line 120. Insert a space between DEFINT and a.

Page 61. Smallest section of code. Part of line 2950 got pasted on to the top of this block.

Line 4710. This should be changed to:
4710 FOR i=1 TO 25:LOCATE 1,1:
PRINT CHR$(11):NEXT i:RETURN

Line 4720. This should be changed to:
4720 FOR i=1 TO 25:LOCATE 1,25:
PRINT CHR$(10):NEXT i:RETURN

The Data statements from 4520 should have spaces between the Data command and the first number which is zero.

If you are still having problems, even after making these changes, try leaving out the INK commands in line 2200. These turn all the ink colours to black, making it impossible to see any error messages that come up.

Pagemaker available

Advanced Memory Systems have launched AMX Pagemaker for the CPC 464/664/6128. The package combines a typesetter, graphics and word processor. The package is intended to be used to produce letters, posters and anything else on A4 sized pages.

Using the AMX Mouse to drive the software, pages can be created, manipulated, saved and reedited, and of course printed out on a variety of printers. The price for Pagemaker, which includes two discs, is £49.95.

AMS have, at the same time, launched AMX Utilities. This costs £14.95 on cassette and £19.95 on disc. It is intended to enhance the facilities available from AMX Art. It enables the previously created screens to be scrolled, reflected, shrunk and stretched.



Tony Crowther (left) shakes the hand of smiling Mike Mahoney

Alligata snap up Tony

Tony Crowther has returned to Alligata Software as a full time games programmer. Tony previously worked for Alligata in 1983/4 writing such games as Killa Watt on the Commodore 64 (this is a competitors computer). Having returned to Alligata, he and Mike Mahony, managing director, are planning a spot of world domination, starting with the British Isles.

Educational for Joyce

Bourne Educational Software have released two educational titles for the 8256. Animal Vegetable Mineral and World-wise, available for the CPC464 already, and converted from programs originally sold for the Beeb.

World-wise is a geography data base program which teaches the child information about the world, while Animal Vegetable Mineral is a guessing game where the child teaches the program information. The programs will cost £14.95 and can be obtained direct from BES. Phone 0794 523301 for details.

WP and C

Micro Business Products have sent us information about two new products, a word processor and a C compiler.

The C compiler operates under CP/M Plus and is the type that produces source code to be assembled using Rmac and Link, supplied with CP/M Plus. It includes a library of more than sixty functions including Unix VII compatible functions. The compiler comes with a 60 page manual.

The word processor claims a whole host of features as well as the usual ones, including the ability to create graphs and line drawings. The program has been converted from Workwriter II on the IBM PC to work on the 6128.

Both packages cost £34.95 and are available from Peter Vekinis in Brussels, Belgium. For more information phone Belgium 375 0953 or 374 9164.

Beyond Beyond

Two senior managers of Beyond, famous for Lords of Midnight and being taken over by British Telecom, have left to set up another company. Bill Delaney and Clive Bailey, managing director and marketing manager of Beyond are joining Paul Voysey and Tayo Olowu, who wrote Psytron. The company and their first product will both be called Nexus.

The game, which will be available for the Amstrad 464/664 and in an expanded 6128 form, will be an arcade adventure set in the headquarters of a drugs ring. The idea is to compile evidence against the ring while trying to survive the various dangers.



All go at the Show

The third Amstrad Computer Show took place in Manchester's New Century Hall. This was the first Amstrad show to leave the London venue but all the well-known faces were there.

Amstrad User shared a stand with the User Club who did a roaring trade selling the whole range of Amstrad and Amsoft products, with discounts to club members. They were demonstrating the new PCW 8512 and answering a range of technical questions.

DK'tronics had the usual display of RAM upgrades with a promise that the 6128 RAM disc would be available very soon.

AMS, the mouse people, launched a new utilities package and previewed the newspaper making system, Pagemaker, with a scrolling demo of the ever-smiling Terry Wogan.

Business software was very much in evidence. Sandpiper showed a comprehensive collection of accounting software with sale, purchase and nominal ledgers. Newstar proved itself to have the widest range of software for the PCW and 6128, including some games for the Joyce.

This was the first public outing for the Amstrad version of Multiplan, one of the world's best selling spreadsheets. Newstar was showing its comprehensive communications package called Starcomm and has launched into the world of publishing with a book on CP/M plus.

FMP Business Software was selling its Personal Assistant package to run under CP/M plus. Caxton showed its range of business software – Cardbox (which it insists is not a database but an electronic card index), Scratchpad Plus which has been written for the PCW computers and Brainstorm which is described as an ideas processor. Caxton is particularly proud of its hot line telephone service.

More business software was on display from Cornix, Connect Systems and Saxon Computing.

Compact had its business range, along with the award winning Nucleus program generator. Quest ran a competition to promote the Cash Trader program and the editor won a copy of Wordstar.

Sagesoft had a huge stand selling and demonstrating the Chit Chat comms package and a large range of business programs.

The unusual product of the show award must go to the Thingi, a sort of paperclip which can be hung on the side of a computer. Tasman had a good entry in this category with an Arabic word processor.

Arnor had two new products for sale, the Prospell spelling checker (reviewed on Page 15) and Promerge, a mailmerge program.

The first book to appear about any computer is usually not much better than a rewrite of the machine's manual but it was refreshing to see that the first Joyce book bucks this trend. Sigma did some very brisk trade with its "Mastering the PCW8256/8512".

Screens were running spectacular demonstrations of the Vortex RAM boards for the 464.

On the games front there were a few new titles. Incentive had the noisest stand, demonstrating Moon Cresta, with a free T-shirt for anyone who ordered a copy at the show. Micropower had a preview of a great new Dr Who game – Dr Who and the Mines of Terror. Design Design, on home ground at this show, was selling Forbidden Planet – the sequel to Dark Star. This displays all the usual Design Design traits, a funny high score page, silly instructions and even a simple Space Invaders.

Mikro Gen had the most spectacular game, previewed at the show. Equinox is a shoot-em up maze game with graphics to rival Sorcery.

Graf Sales had the first non-Amstrad hardware for the Joyce – a PCW Grafpad – which will be launched at a computer graphics show. Graf claims that its system for £600 will rival others for £4,000. Existing users of the Grafpad will benefit from a new utilities package which allows users to incorporate the Graphpad in their own programs.

The atmosphere was a little different from that at the London shows. Many more people came to buy computers and all the PCWs had gone by lunchtime on the first day. Evesham micros were selling the new 8512 but those went very quickly.

The educational market is starting to take off. Northern Computers, who distributes Amstrad computers to schools, had a 100 mbyte hard disc network. Bourne Educational Software launched its PCW 8256 software and LCL had O and A-level packages.

The third Amstrad Show has proved that Arnold and Joyce have plenty of fans outside London.

ACU



Having your cake and eating it

We ran a competition to win a cake just like the one on the December front cover. Now we have a winner. She's Karen Westley of Kenilworth. Which is a long way from the ACU offices, especially for a cake.

She had to answer ten tricky questions, followed by: "I would like to share my cake with . . . because . . .".

We didn't realise there were so many Alan Sugar lovers (obviously not 664 owners) all praising him and quoting that he's sweet enough to be the icing on the cake, but here at ACU we can't stand crawlers.

Out came Karen's entry and so out went Jane and Lorraine (from advertising) to deliver the cake personally. Picture here shows early shots (8.30am – before school) of Karen in the kitchen with sister, friend and cake.

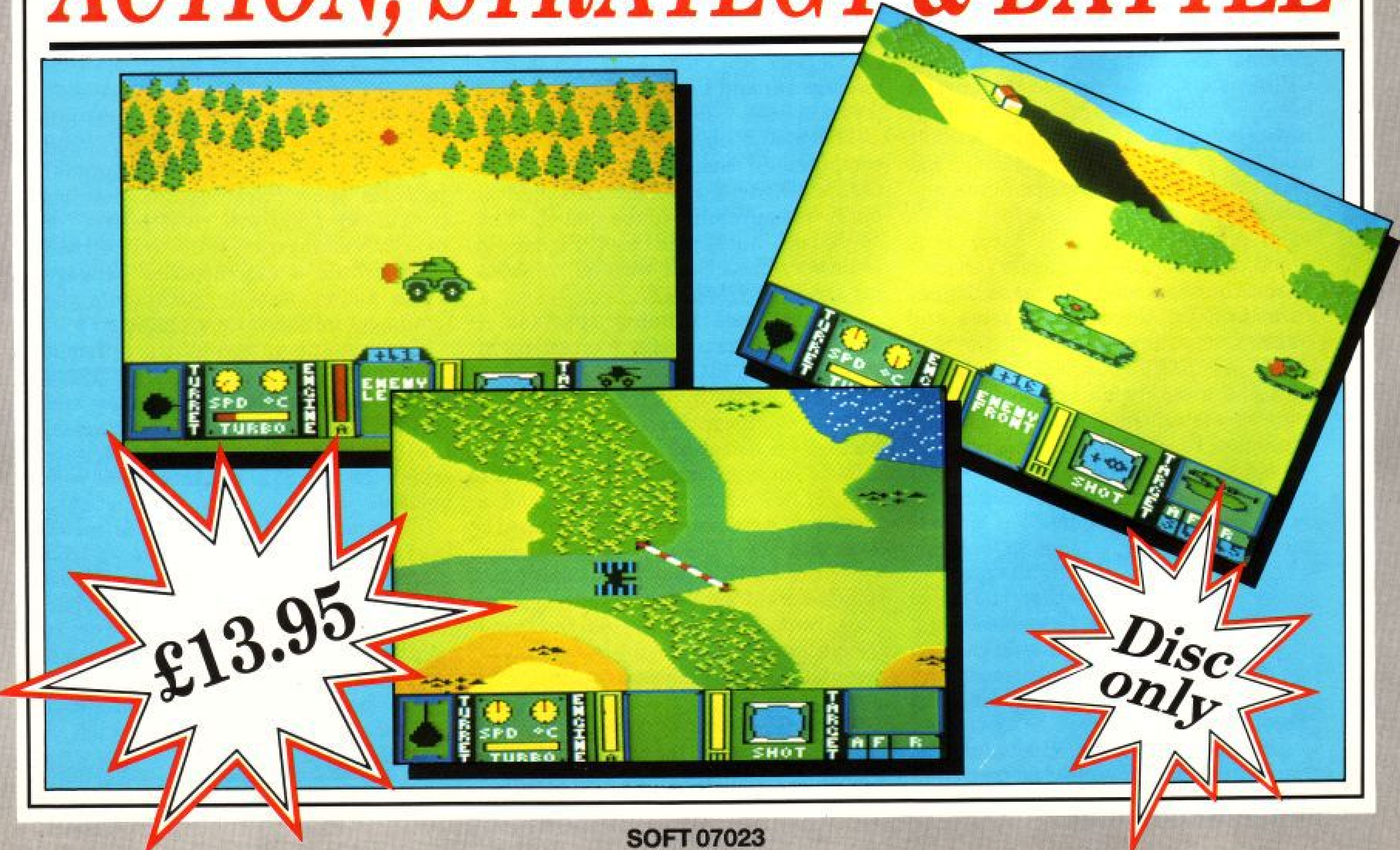
Karen completed the competition sentence with: "I would like to share my cake with King Alfred The Great because he burnt his".

She's a keen ACU fan, along with her younger sister, and has had her 464 since Christmas 1984.

The cake would have lasted Karen and her family until Christmas so she took the screen to school and let all her friends have a byte.



A MULTI - SCREEN GAME OF *ACTION, STRATEGY & BATTLE*



SOFT 07023

Write to reply

Please bear in mind that the views expressed herein are not necessarily those of Amstrad or Amsoft. Be assured that all your views are given thorough consideration. This letters section is the Amstrad Computer User's own forum.



Link up

I have recently purchased two CPC 6128 machines which are used in connection with my business.

Please let me know if Jetsam is available for this machine as the use of indexed files would be of considerable assistance, and I am used to this facility on the machine that was replaced.

My second question is whether there is any means of transferring data files from a Commodore Pet 4032 to the CPC6128. I am prepared to consider any method – such as via tape, direct connection between the machines and so on.

C.R. Gross,
St. Peter, Jersey.

ACU: *You can use Jetsam if you buy CPC6128 Mallard Basic from Locomotive Systems at 1 South Street, Dorking, Surrey.*

To transfer a file from a Pet to an Arnold you will need a serial interface for each computer. Commodore don't make a serial interface but plenty of other people do – try a good local dealer.

You will need a serial interface for the 6128 – the Amstrad RS232 is as good a bet as any – and some software. This is where the fun begins.

The software at the Amstrad end is not too difficult to write but the Pet does not use Ascii so you will need a Pet-to-Ascii converter. The supplier of the Pet serial interface may be able to help here. This process is technically possible but it may take some time to get it working.

Getting Roland to run

Ta muchly for your "Run Roland, Run" saga (to be sung to the tune of "Run Rabbit . . ." while loading to the Straddy).

I have it working but, alas, from the Basic hex loader version published in the February issue. I tried the March version, using my brand new Code Machine from Picturesque, but my inexperience was the main problem, I think.

I worked out that your Maxam instruction LD B,–1 had to be translated to Ld B,155 (lines 2454 and 2610), but your use of a multiplication symbol in line 5820 was beyond me and I had to find the corresponding code (01 F8 02) in your Hex loader.

John Avieson,
London.

Antipodean antics

This is an open letter to all Amstrad users worldwide informing them of the existence of the Australian Amstrad Network.

The network is an information exchange service between Amstrad user groups and has participating groups in every state of Australia, including the ACT and NT.

The service is free, the costs being borne by the directors (one in each state). The criteria for entrance is the willingness to share knowledge about the Amstrad.

We are at the moment setting up what we believe to be the first national bulletin board dedicated solely to the Amstrad. From this will be produced a national monthly newsletter that can be downloaded by subscribers (access will be by security ROM) for which a nominal fee will be charged. By the time you read this the system should be up and running.

Through cooperation, members already have access to information about RAM expansion boards, burners, speech synths, RS232s, ROMs and ROM boards, 5¼in drives (using them as the A drive) reliability of software houses, AWA service and backup (in some cases non-existant) and much more.

We now have through the network directors personal access to more than 1,000 users in Australia already and through this medium would like to invite any user group – no matter their location – to join us. Enquiries are invited from individuals who are not members of a user group due to non existance of one in their area, although individuals who are members of groups will not be allowed access.

Enquiries may be directed to:
Donald P. Leith,
National director,
Australian Amstrad Network,
534 Albion Street,
West Brunswick,
Victoria,
Australia Pc. 3055.

The price of software

If software companies reduced the cost of their software, perhaps more people would buy them and the problem of piracy would be lessened.

So while these companies want to do nothing more than rip off the buying public, I would be the last person to refuse a pirate copy of any program I wanted.

Producing software is very different from producing hardware. In the first place enormous factories do not have to be built, there is no capital stock risk which could be scrapped overnight and it does not take millions in development cost.

Highly specialised software may be one thing where only a few copies are sold. But software like Wordstar cannot justify a £300 price tag when other companies like Tasman can offer word processing programs which are equal in quality and effectiveness for a little over £10.

I look forward to the day when software is advertised at a reasonable price. Then perhaps I will buy rather than borrow.

Until then, sharing software is the cheapest form I know. Exactly how much does it cost to develop a major program?

Walter Parsons,
Royston, Herts.

ACU: *Writing software is an expensive business. A program may take many man-years to write and has to be done by skilled programmers. To pay two years' wages to programmers before you sell a copy of the latest wizz-bang word processor is a significant capital investment.*

Many big companies use large multi-

user micros or mini computers for software development – again a large capital investment.

It is far too easy to look at the price of a blank disc, compare it with the price of the software and conclude that you are being ripped off. Would you value a painting by the cost of the oils and canvas?

Liz crushes competition

What is the reason for the appearance of Liz Ting instead of the £2,000 Software competition?

Liz seems to want short games-type programs, but the Software competition was aimed at rather longer programs. There is surely room in *ACU* for both shorter and longer programs to have a place?

Speaking of Liz Ting, how much does she pay for any programs that she uses? And what does she mean by "tape or cassette"? Should I get out my old reel-to-reel tape recorder, or does she want a Mag Tape from the mainframe at work (1200 bpi PE tape or 6250 bpi GCE tape)? She presumably also accepts discs!

M.J. Ross,
London

ACU: The competition will continue but as that is only for user club members, we also want to publish good programs from non-members. By tape Liz did, of course, mean disc.

In praise of Cirkit

I read with interest your review of communications equipment in the March issue.

I would like to point out that the Cirkit interface is perfectly capable of driving serial printers and other modems.

To drive serial devices other than modems new software is required, of course, but the existing software will drive most if not all modems.

The limiting factor is that the interface only gives out TTL voltage levels rather than +/– 12v of RS232.

This should not affect any modern modem – even the old BT modems are quite happy with it. A few of the handshaking lines are missing but again it is easy to get round that problem simply if you know what you're doing.

It is also possible to configure the public domain program UKM7 to enable MODEMX file transfer under CP/M.

This gives access to much free CP/M software from the bulletin boards and will also allow transfer of programs between two CP/M machines.

All in all the Cirkit set up is versatile excellent value for money and more than at first appears.

Its only shortcoming really is that it cannot be configured as a CP/M logical device but, as mentioned above, with a little thought it is still possible to use it under CP/M.

P.A. McArthur,
Hogganfield, Glasgow.

Under offer

After reading your excellent article on communications I wondered how I ever survived without a modem, so I have decided to buy the Honeysoft system.

Could you please tell me if the ACU/Honeysoft offer in the February issue is still open and does the Honeysoft interface work on the CPC6128?

I would like to point out that Yie Ar Kung Fu is CPC6128 compatible, contrary to what the Gallup Software Charts say and Formula One Simulator, Caves of Doom, Gryscope and Spellbound also work.

Scott Moncrieff,
Hamilton, Scotland.

ACU: The Honeysoft offer is no longer open because the rights to the software have been bought by Pace.

ACU

REMs

What have the Romans ever done for us?

If we are to be erudite about 'supersede' we might as well get it right. A. Fisk has it the wrong way round! The word comes from the Latin supersedere, which means 'to sit above' or 'be superior to', and not from 'super' and 'cendere'. So a good classical education gives one the correct English spelling.

It was the Old French who used the spelling superceder, but later the French too used the spelling with 's'. Nowadays the French seem to do without the word altogether (at least it is not in my Larousse), which enables them to avoid this fascinating correspondence. (J.E.J. Altham, Gonville and Caius College, Cambridge.)

Get it taped

As an absolute novice to PCW 8256 which I am still strugggling to master I was very interested in the article in the March issue by Sue Maybee on the audio self tutorial package by Head-Line Communications Ltd, and feel this could be of assistance to me.

The article however fails to give the address of this firm and I have searched the issue without success.

Could you please let me know how I can obtain details of this package? (J.G. Parry, Wrexham, Clwyd.)

***ACU:* The package is available from Newstar who have an advert on Page XXII of the business section in the March issue.**

Double trouble

Being early off the mark can have drawbacks, as I found when I tried to order the PCW with the second disc-drive already fitted. This proved not to be feasible and I had to wait over two months before the FD-2 drive arrived and was fitted.

To my subsequent frustration it has been impossible to obtain the CD-2DD (quad density) discs which are stated to be the ones required for this drive, although I have tried dealers in London, Birmingham, Manchester and Nottingham.

The supplementary user's manual which accompanies the FD-2 drive, incidentally, describes the CF-2DD discs (rather misleadingly) as "double density discs".

As a result I have had conflicting advice as to whether ordinary 3in CF-2D (true double density) as well as the unobtainable CF-2DD (quad-density) discs are usable on the PCW 8256 and would welcome authorative advice in your columns on this rather important point.

Lastly, can you tell me whether there is any prospect of a cut-sheet feeder becoming available as a customised accessory for the PCW 8256's printer?

I feel sure that I am not the only person involved in printing out long documents who would find this invaluable. (Kenneth Walton, Birmingham.)

***ACU:* You can use standard CF-2s in an FD-2 but they may not be reliable, with the advent of the PCW 8512 the correct discs should become more common.**

REMs

SOFTWARE

GALLUP



This chart is based on the MicroScope chart as compiled by Gallup.

MicroScope GALLUP

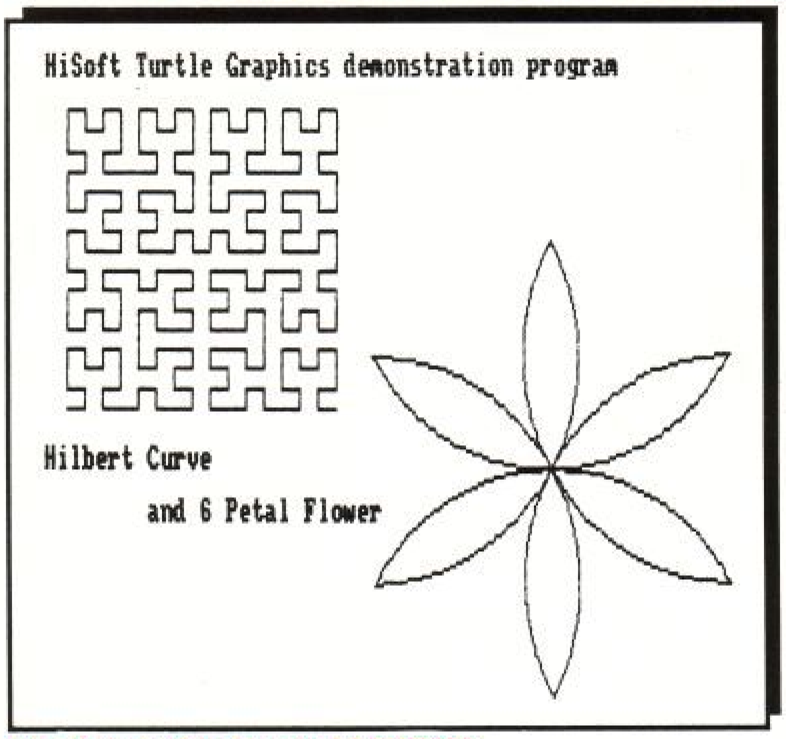
MicroScope is the weekly trade paper of the microcomputer industry. If your computer store doesn't display the latest MicroScope chart, ask the manager to call Mark Salmon on 01-631 1433 — we'll send a copy every week.

	TITLE Publisher 4 weeks up to 8/2/86	Last Month			Months in chart	Market Strength
1	**RAMBO** Ocean	ne	▲	664	1	100
2	**ELITE** Firebird	9	▲	664 D	2	85
3	**SKY FOX** Ariolasoft	8	▲	664	2	75
4	**YIE AR KUNG FU** Imagine	2	▼	664	4	75
5	**HYPERSPORTS** Imagine	13	▲	664 D	2	73
6	**CAVES OF DOOM** Mastertronic	5	▼	???	4	60
7	**THEY SOLD A MILLION** Hit Squad	1	▼	664 D	4	59
8	**FORMULA ONE SIMULATOR** Mastertronic	3	▼	???	5	59
9	**FINDERS KEEPERS** Mastertronic	4	▼	???	8	55
10	**ONE MAN AND HIS DROID** Mastertronic	14	▲	???	2	53
11	**NONTERRAQUEOUS** Mastertronic	17	▲	664	8	52
12	**MINI OFFICE 2** Database Publications	ne	▲	664 D	1	51
13	**WHO DARES WINS 2** Alligata	11	▼	???	3	51
14	**SPELLBOUND** Mastertronic	12	▼	???	3	48
15	**SOUL OF A ROBOT** Mastertronic	7	▼	???	5	45
16	**SPITFIRE 40** Mirrorsoft	18	▲	A 664 D	3	43
17	**TAU CETI** CRL	ne	▲	664 D	1	40
18	**CHILLER** Mastertronic	16	▼	???	8	36
19	**3D GRAND PRIX** Amsoft	6	▼	A 664 D	5	32
20	**COMPUTER HITS (10)** Beau Jolly	10	▼	???	4	32

D Available on Disc — 664 CPC 664/6128 Compatible — A Available from Amsoft — ??? Untested

SOFTWARE CHART

GRAPHICS ON YOUR PCW8256/8512
with HiSoft Pascal80 & HiSoft C



Screen dump from Amstrad PCW8256.

Now, at last, you can write programs that use graphical output (to both the screen and the printer) on your **Amstrad PCW8256** and **PCW8512** computers with **HiSoft** software!

HiSoft Pascal80, our fast, easy-to-use CP/M Pascal compiler, and **HiSoft C,** our extensive CP/M version of the popular C language, now both come with extended GSX source libraries, allowing points, lines & bars (with 12 different types of shading!) to be plotted & printed.

These libraries are absolutely **FREE** when you purchase Pascal80 or CP/M C so, whether you like the structure of Pascal or the freedom of C, you can now bring your PCW computer to life!

We specialise in producing high quality products, especially languages and utilities. Our ordering, upgrade and pricing policy are outlined below. Please feel free to phone or write for more details of any of our products or for Export prices, rush shipping charges etc.

HiSoft ORDERING

All products are available directly from us by mail order or by telephone using Access or Visa. All prices are inclusive of VAT and postage and also include the relevant manual. We always despatch orders by first class post. Please enclose a cheque or postal order made payable to HiSoft. Be sure to tell us exactly **what computer** you have and **what product(s)** you want.

HiSoft UPGRADES

We offer an upgrade service if you have an old version of a product and wish to get an up-to-date copy. Please write or call for more information. We cannot offer an upgrade from one product to another (e.g. if you change your computer or go from cassette to CP/M) because of the substantial effort which goes into creating each product.

HiSoft PRICES
AMSTRAD CPC, PCW8256/8512
DISC

PASCAL80 (CP/M 2.2, CP/M Plus) compiler/editor	£39.95
DEVPAC80 (CP/M 2.2, CP/M Plus) assembler/debugger/editor	£39.95
C (CP/M2.2, CP/M Plus and AMSDOS versions together) compiler/editor	£39.95
CATALOG (file cataloguing system)	£14.95
The TORCH (CP/M 2.2, CP/M Plus) CP/M tutorial	£12.95
The KNIFE (CP/M 2.2, CP/M Plus) CP/M disc sector editor	£12.95
FONT64 (not CP/M or 8256) font editor/screen copier	£12.95
CPC ONLY	
AMSDOS PASCAL (interactive with line editor and firmware support)	£34.95
AMSFOS DEVPAC (the original AMSTRAD development system)	£26.95
ART IN PASCAL (graphics creation + Pascal source FREE/you don't need Pascal)	£14.95

TAPE

C compiler	£34.95
FONT64 font editor/screen copier	£7.95
PASCAL (interactive with line editor and firmware support)	£29.95
DEVPAC (the original AMSTRAD development system)	£21.95

All prices are VAT inclusive.
Please write or call for Export prices and Shipping details.

HiSoft 180 High Street North, Dunstable LU6 1AT. Tel: (0582) 696421

Prospelling for profesional results...

By David 'No I don't work for Arnor' Foster

When asked to do a review on Prospell, the latest product from Arnor, I was immediately confronted with a couple of problems. Firstly, the number of spelling checkers available for the Amstrad CPC range is relatively small, making a comparative review difficult, and secondly, I have always had a deep suspicion of rave reviews. "Nothing can be that good, surely".

Well in this case it is. Of all the spelling checkers I have used, on a variety of machines, this is the first one that I choose to use, rather than feel the need to use. The reasons for this are simple – convenience and flexibility, combined with speed.

Prospell is available either on disc or with the program on ROM and the dictionary on disc. The first thing to do on getting it is to make a copy of the dictionary, preferably two. The dictionary comes with more than 30,000 words and is about 75 per cent full. There is no limit to the number of dictionaries you may create and use.

I chose the ROM version and would suggest that if possible, you do the same. The real advantages of ROM software, the instant availability and minimal use of memory, are shown to their best advantage in this sort of program.

There are two completely separate ways of using Prospell, either from within Protext, in which case it is capable of checking documents up to about 80 per cent of the maximum size permitted by Protext, or alternatively, as a "stand alone" program, when it can check individual files up to the capacity of the disc.

Used from within Protext

If you have the disc version, you must load Protext in the normal way, use the Q option and then load Prospell, using RUN"DISC". Having both programs eats up some of the available memory, but still leaves enough space for you to create a document of about 10k.

The ROM version will allow you to check documents of around 32k. If the document is too long you are warned to save the document and check it in "stand alone".

Once you have created your document all that is required is to type in "SPELL" from Protext's Command mode, having first inserted the dictionary disc. Alternatively, "SPELLB" will check a marked block. With two disc drives, the program automatically configures itself so that the dictionary is inserted into the opposite drive to the one containing the text files.

The screen clears and a series of messages inform you of the fact that it is Sorting, Scanning and then Checking. Unrecognised words are displayed on the screen and you have the choice of Storing the word in the dictionary, Ignoring the word, in which case you will be told how many cases are being ignored in the rest of the text, Viewing the word in context, which presents you with a number of lines of text, containing the unrecognised word.

Change presents you with the word in context, and you have only to type in the correct word. Lookup will try to find similar words from the dictionary for you to choose the correct spelling. This last option takes some time, because it has to search the dictionary and is not infallible. The word you want may not be in the dictionary.

When the spelling check has been completed you are given an analysis of the number of words stored, changed and checked. If any of the word lengths have been altered you are cautioned about the need to reformat, a simple task using Protext's Format command on return to Protext. Saving or Printing is done in the normal way.

Prospell stands alone

On its own, Prospell offers a host of functions that should keep everyone happy. It is very flexible and is capable of checking any Ascii format files and can check files created by Wordstar and its clones, effectively this permits it to be used to check files created by most word processing programs, as well as Protext files.

Disc users should run the program, using RUN"DISC", to load the necessary RSX while ROM users only have to type in " SM" (for Spell Menu), which immediately puts you into a Main Menu containing seven options. The program can be used in either Mode 1 or Mode 2, but the latter is preferable as it give more detailed information than is possible with Mode 1.

Main Menu options

The CAT, Erase, Back-up files, Printer On/Off and Utilities Menu (of which more later) options, are obvious. Some word processors, like Wordstar, store their text in an unusual format and another option allows you to set Prospell to check files created by such programs.

It would be impossible to check for all the file formats used by different word processors, but most of the ones you are likely to meet on an Arnold are catered for. The two main options on this menu are Spell Check files and Two Pass check.

The Spell Check option is virtually the same as the Spell option described above, the main differences being that it is possible to have the printer on, so that when words are found they are also sent to the printer and on entry you specify the file name to check. The file is loaded and checked as before, and when complete the amended file is automatically resaved.

If the text file is too big to fit in memory in one go the program will load and check the file in suitably sized blocks and resave each one before loading the next for checking. As before, you are warned if the file will need re-formatting.

The options used so far only permit the use of one dictionary, which should be more than adequate for the majority of uses, but the Two Pass check permits more than one dictionary, which can be particularly useful for anyone working with technical subjects which frequently have obscure or specialised words.

Initially things proceed as for the other options, but when the checking starts the program does a first pass listing any unrecognised words, either to screen or screen and printer and after completing the first pass, the option to check another dictionary is offered. The process is repeated using another dictionary disc.

When you have used all the dictionary discs you want each word is displayed in turn as before. Apart from the facility to use more than one dictionary, the main advantage of this method is that if the printer option was selected, you will have a list to check at your leisure before quickly dealing with them in one go, on the second pass.

Utilities Menu

This is the area where all the little bits live, not to mention some very big ones. Ten options are available, some of them, such as CAT and Printer on/off, merely duplicating those on the main menu for convenience.

List dictionary allows you to select where to start, before listing the contents of the dictionary.

Edit dictionary permits you to enter or delete words, by entering a word. If found you can elect to delete or leave it, if not found, to store or leave it.

Word count gives you a count of the total number of words in the dictionary and an indication of how much space remains in the dictionary.

Facilities are provided to create a new blank dictionary, change the name of an existing dictionary and a very interesting option called Build Dictionary which works in a similar fashion to the normal Spell option, the difference being that instead of you deciding what action to take, every unrecognised word is automatically stored in the dictionary. This can be very convenient for creating new dictionaries from text that is known to be correct.

Users with two drives also have the option to write the words to an Ascii file on the text disc. When used with a blank dictionary disc this enables a file containing an alphabetical list of words to be created from a text file.

This leaves just two more options, Find and Anagrams. The latter does just what you would expect of it. Enter a word or collection of letters and the program will list all words that utilise those letters. Wildcards are supported in similar, but slightly more extensive, fashion to that used by Amsdos.

Find is similar to Anagrams except that it only finds words in the specified order. Wildcards are permitted. The opportunities afforded by these two options should go a long way to solving all those crosswords and word puzzles that drive you mad.

Conclusion

Prospell is faster than any others I have used, but the real beauty of it is the extreme versatility in the ways you can use it, with what you can use it and the ease with which you can create and add to dictionaries.

Not only that, but it understands Queen's English, unlike most, if not all of the CP/M offerings, which are of American origin.

How fast is Prospell? This review is about 1,700 words long (unless the editorial Block Delete has been at work) and took 68 seconds to check from within Protext. This is more spectacular when one takes into account the time required to save files and reload into most of the other spelling checkers.

What are the shortcomings? Very few, and those that it does have are the same ones found in all other spelling checkers at present.

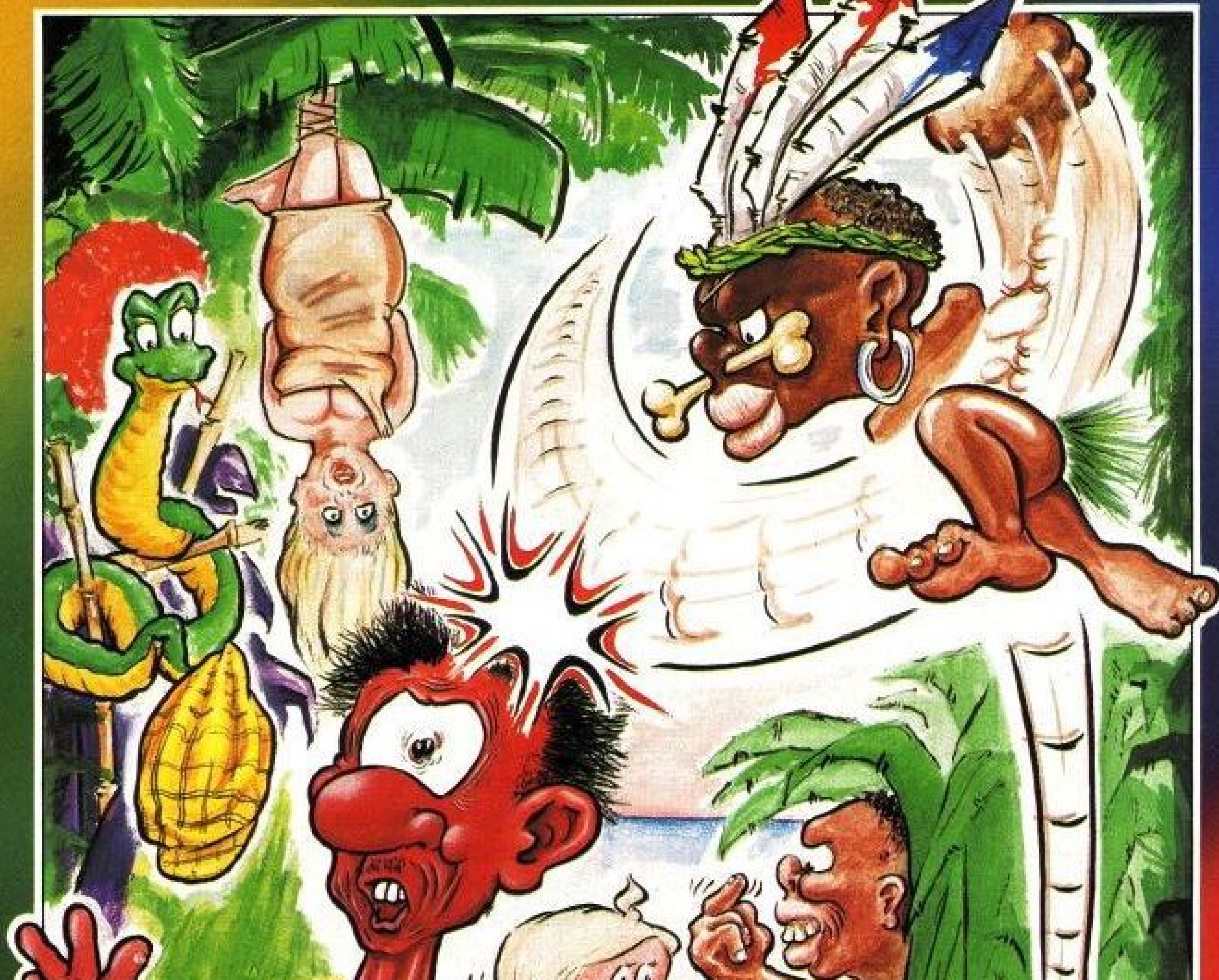
Until someone perfects artificial intelligence for computers, spelling checkers are just that. They cannot check the meaning of a word in context, so if you type in herd when you meant heard, the program will not recognise the error.

As with Arnor's other products, Prospell is a very professionally written program, user friendly and as far as I can see, entirely bug free. Anyone looking for a spelling checker need look no further than Prospell.

ACU

SENSATIONAL SOFTWARE FROM

MIKRO-GEN



Three Weeks in Paradise

AMSTRAD CPC 464/664/128 £9.95

Unit 15, The Western Centre, Bracknell, Berkshire
Tel: 0344 427317

Max Headroom 2.6

M-M-Max Headroom – Exclusive game preview twenty m-m-minutes into the future

Max Headroom is a computer-generated guy so it seems kinda appropriate he should make it to the memory mapped screen not long after his debut on the glowing box in the living room.

The people who are responsible for turning the Max Headroom story into computer experience are Argus Press Software, the company which collects software houses the way some people collect model cars. Companies within the group include Bug Byte, Clever Clogs and Quicksilva. Argus started as a strategy and adventure game software house. Perhaps its best wargame was American Football, which is sold by Amsoft but only works on the 464. *(Amstrad Technical has a hint sheet to fix it for the 664 and 6128 – Ed).* With this pedigree you would expect Max Headroom to be a game which involves some thinking as well as fast reactions and a supple wrist. You would be right.

Time for lift-off

The game takes place in the building of Channel 23. You need to get on to the top floor, number 211, and do the usual computer game world saving bit. Now there is no way that you can just stroll up 211 flights of stairs and walk into the offices. For a start you are lazy. Ah, the lift – that seems like a good idea and this building has two of them. As any fan of Hitch-hiker's Guide to the Galaxy will know using a lift is not a simple matter. Yes I know you just walk into the Amstrad building, press the button with a 5 on it and you get to the magazine offices – but it doesn't work like that in fiction.

To persuade the lift to move you have to prod it. This prodding is electrical in nature – there is an eight segment LED and if you supply power to the right wires you will light up the segments and the lift will take you to floor of your choice. Fail to trigger the right number and you could end up on the wrong floor – like the editor does after one of his long lunches *(cut this bit out please – Ed).*

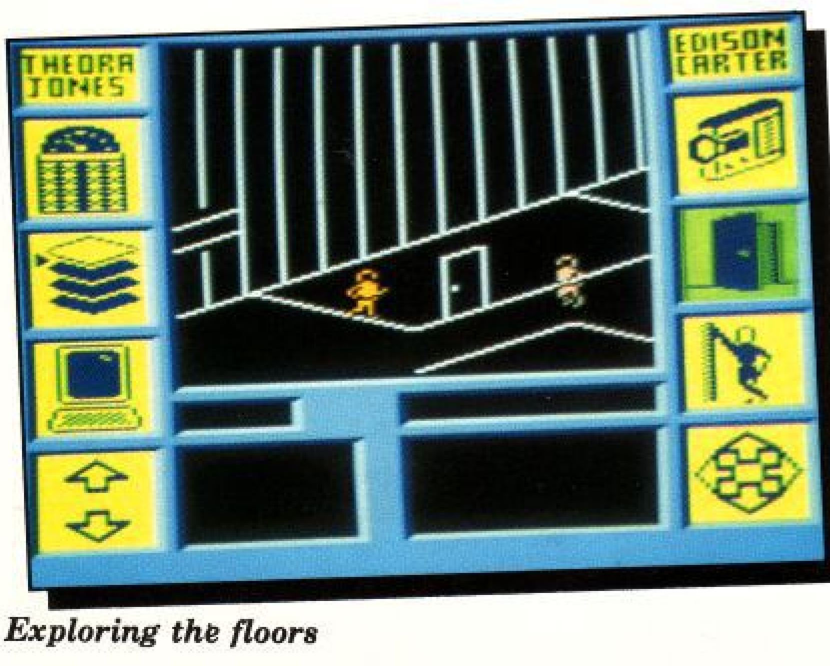
Even when you do get the lift working you can't just waltz up to the top floor and duff up the bad guys – that would be far too easy and ruin the game. You need to be subtle and break into the big cheese's office by entering a secret code. You could guess this but it is bound to be wrong. There is another way.

Some of the offices within the building have bits of the code hidden in them. The people who have been given these obviously don't read the bit at the bottom of their Barclaycard bill about putting passwords in a safe place because the codes are left lying about. All you need to do is explore a little and you will find them.

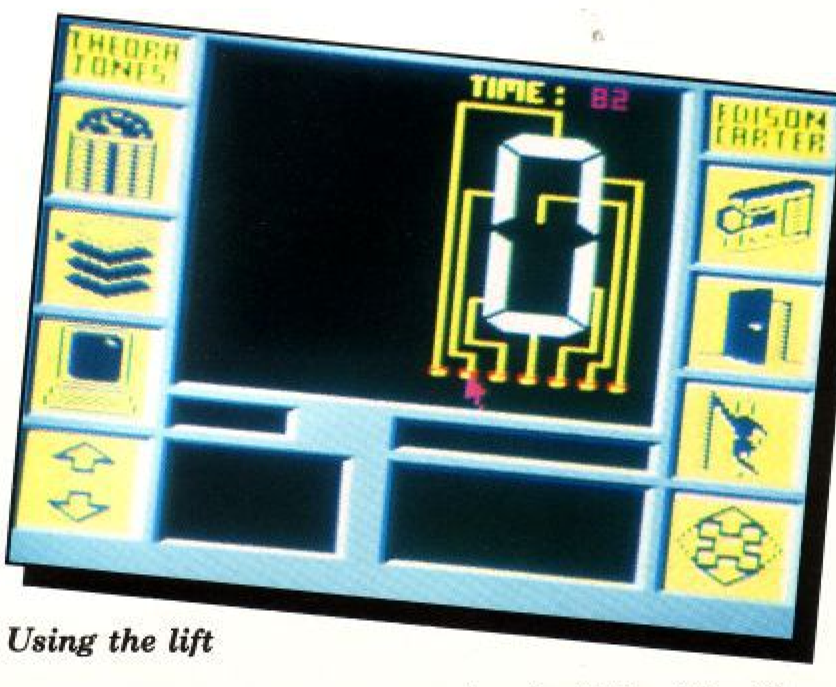
Getting around a bit

Within 211 floors you would have to be a regular Dr Livingstone to get around all the offices. Luckily you know that the codes will be kept on the top 10 floors. This is pretty lucky for the programmers – just imagine trying to cram 211 floors into 64k.

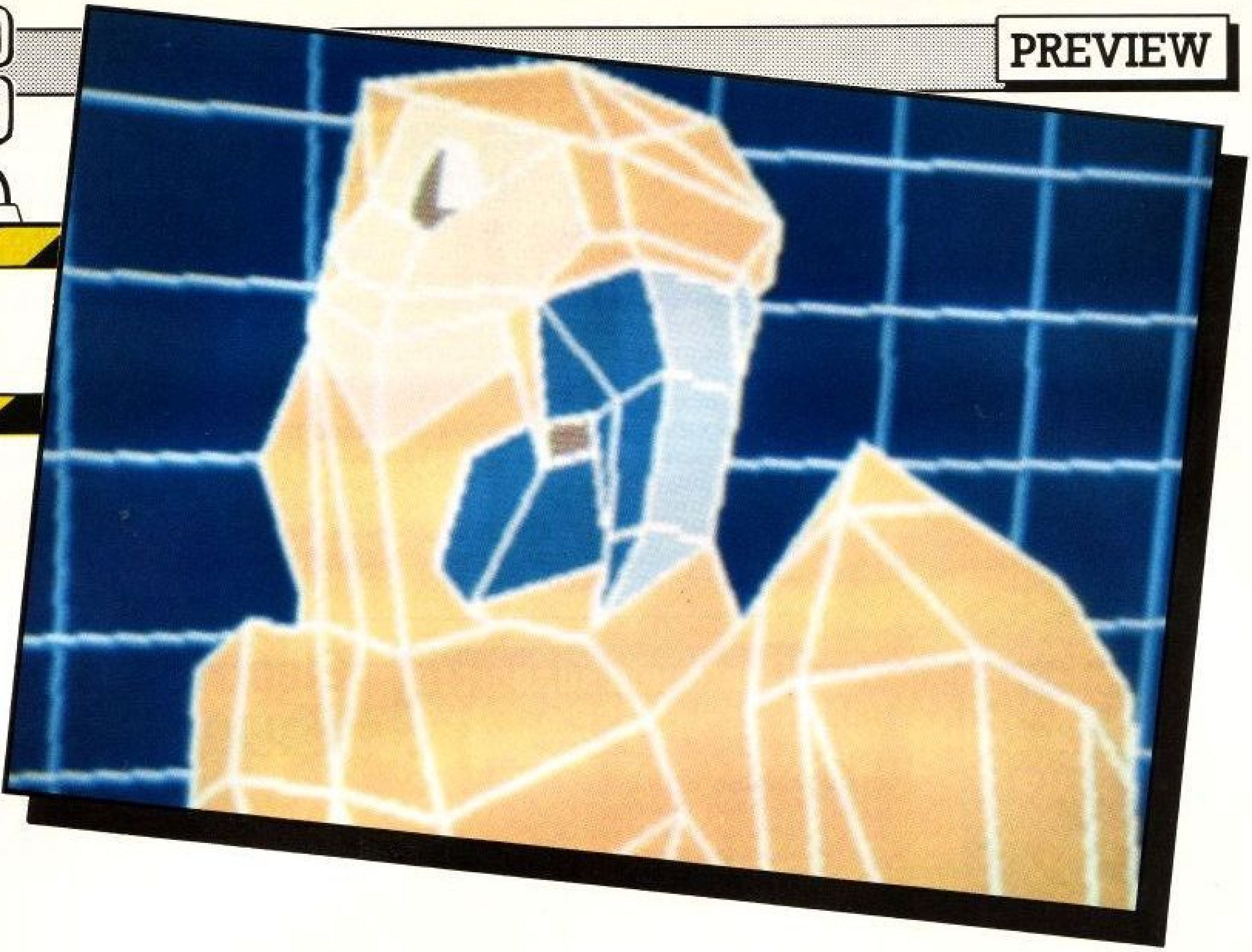
Exploring a floor is not easy. Every floor is protected



Exploring the floors



Using the lift



by a robot guard who will attack you if he catches up with you. It is a good idea to turn the lights on before looking as it helps you see. There is nothing easier than turning on a light, except in this game. As you go for the switch a row of LEDs flashes in a tell tale sequence. All you have to do is remember the sequence, reverse it, type it into the light and you will be able to see.

If you collect all the bits of the code, getting into the President's suite should be no problem. Save the universe and Max Headroom will be your friend for life.

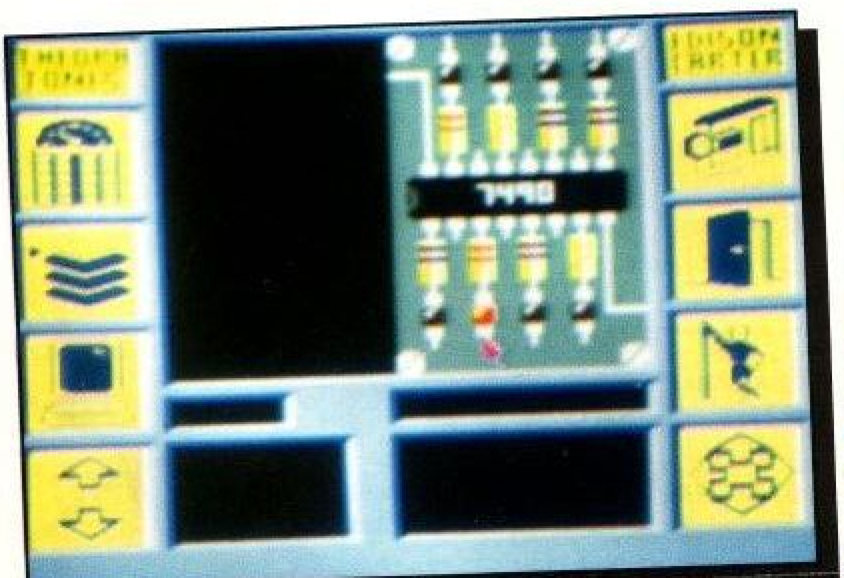
Playing the game

It is quite safe to sit in front of the game of Max Headroom – there are no blipverts. The screen shots here show what the game will look like but pressure of magazine deadlines meant that we had to look at a pre-production version of the game.

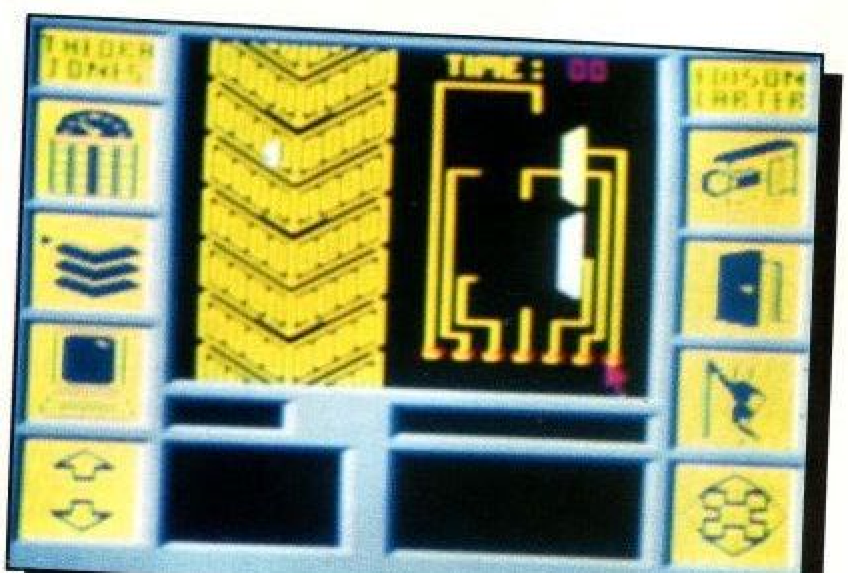
The boxes at the bottom of the screen will hold status information, which floors you've been on and how many bits of the code you have got. The pretty Max Headroom photos are not in the game – they were drawn by Jill Lawson just for *Amstrad User*.

Max is an icon-driven game. You can go from moving your character around to looking at all parts of the floor, to using the lift – all by selecting and highlighting the right window. You can even go into a rest mode.

Max Headroom is a challenging game and it takes time to solve. As Max would say: "Ordinary people like you will get a lot of fun from playing". But then would you trust a man with a heart of pixels who very nearly had the surname 2.6 metres?



This is the light switch



Going up!

GRAFIX NEWS

Amstrad musicians take up the baton ...

Having produced the best graphics software with light pen control, which has yet been seen on the Amstrad, the Electric Studio have commissioned the first light pen controlled Music Package, which also looks set to become the market leader.

The MUSIC BOX is available on cassette or disc and boasts an impressive list of features, which include:

464, 664 and 6128 compatible.
3 channel polyphonic sound.
Tone and volume Envelope Designer.*
Internal storage of approximately 8000 notes.
Print out of musical score.
Save score and envelopes to tape or disc.
Use envelopes in own program.
Any key or time signature.
Automatic bar line insertion.
Easy to use Icons with light pen control option.
Cursor music editor.
Share memory of channels in any combination.
Playback: Tempo: Key transposition: Octave.
Demonstration music included.

* The Envelope Designer uses the light pen to draw the graph of the envelopes — no numbers to enter. Sounds can be played while envelopes are edited.

The package can be controlled by either the ESP or DKtronics light pen; by joystick; or by cursor keys which will help all users get the full benefit from the various functions of the program.

THE PROGRAM WILL WORK WITHOUT A LIGHT PEN AND CAN BE PURCHASED SEPARATELY FOR USE WITH JOYSTICK OR KEYBOARD.

The MUSIC BOX is priced at £9.95 for the cassette program or £16.95 for the disc version and for a limited period the MUSIC BOX plus an ESP Light Pen will be available for the price of £19.95 with cassette software or £29.95 with disc based software.

Don't worry Joyce — you're not forgotten!

Final develo... hich will allow the ESP ... with the Amstr... now ... ch and ... that ... u'll ... in ... nge ... ple ... illu... aphics capal... ight Pen progra... tool for their busin...

PCW 8256
LIGHTPEN &
GRAPHICS PACKAGE
NOW AVAILABLE
Phone for more details

World First for British Company!

At a Press Conference held earlier this week, The Electric Studio announced the launch of the first ever, pixel accurate light pen for the Amstrad, for under £20.

This major breakthrough has been achieved through extensive development of their product since its introduction in September 1985, and is the culmination of months of work by the technical department.

The Technical Director of the company was quoted as saying "Up to now pixel accurate pens for freehand drawing were priced around the £40 mark. We can now produce a light pen capable of total accuracy, for a price that no other light pen manufacturer gets near."

The company confirmed that the ESP "PIXEL" Light Pen was available for £19.95 complete with the cassette software package that has proven to be the market leader.

They stressed that the accuracy would be available on both mono and colour monitors and the CPC 6128 machine specific program with freehand draw ability, will now retail at £29.95 with software on disc.

All future products, commencing with the "PIXEL" pen will be released with French, German and Spanish versions of both program and manual, as The Electric Studio recognises the importance of the European involvement with the Amstrad/Schneider range of computers.

Continued support for existing ESP users

Because of the launch of the new freehand drawing "PIXEL" pen, the Electric Studio will offer a special upgrade facility for existing users of the ESP character accurate Light Pen.

The Upgrade will provide modified pen and software which will transform the unit to a freehand drawing instrument, while the full graphics capabilities of the program remain the same.

Any owner of an ESP character accurate pen, whether in the UK or elsewhere can benefit from this offer by observing the following conditions:

All returns to The Electric Studio, PO Box 96, Luton LU3 2JP.

Cassette Software: Return the Light Pen only.

Disc Software: Return the Light Pen plus a disc and state type of computer.

Any user who has upgraded to a CPC 6128 computer since purchasing a Light Pen will be supplied with a 6128 program provided a blank disc accompanies the returned Light Pen.

Terms and Conditions of Upgrade:

a) The pen must be in working order.
b) Returned units should be mailed in protective packaging. i.e. Jiffy Bag or similar.
c) State clearly name, address and model of computer.
d) Enclose a cheque or P.O. for £5.00 for delivery within the U.K. or £7.00 for overseas delivery.

Electric Studio to support US Giant

6128 owners who have purchased or are considering the purchase of the Digital Research program DR Draw will be delighted by the news of the availability of an ESP Enhancement Pack.

This comprises a pixel accurate light pen with GSX driver on disc, which will allow total control of DR Draw using the light pen instead of cursor key controls.

The cursor is controlled by the light pen which gives almost instant access to all parts of the screen, making menu selection a much speedier process and thus giving additional flexibility to the overall package which is an invaluable time saver for the program user.

8256 users can look forward to a similar enhancement kit being available shortly.

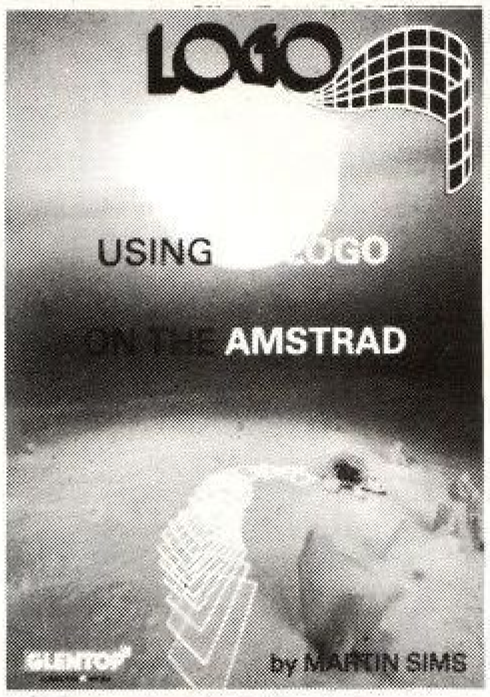
ST LOGO—THE BOOK

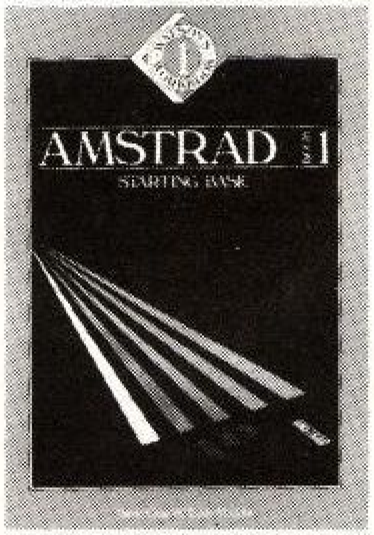
Logo, the exciting new language, allows the novice immediate access to the world of computers. Designed with the user in mind, **Logo** builds programs from simple English-like commands that are immediately understandable.

This book makes Learning **Logo** fun. By working through it, project by project, the reader will explore **DR Logo** and soon be able to write programs using sound, colour, text and graphics. Applications are developed stage by stage and range from interactive games to random poetry generation.

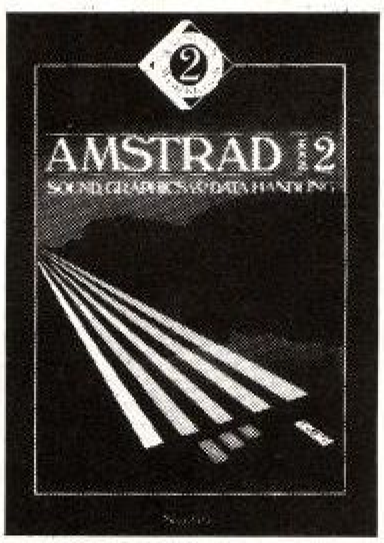
Step into **Logo** and experience the exciting microworlds of sound and colour provided by **DR Logo.**

£8.95





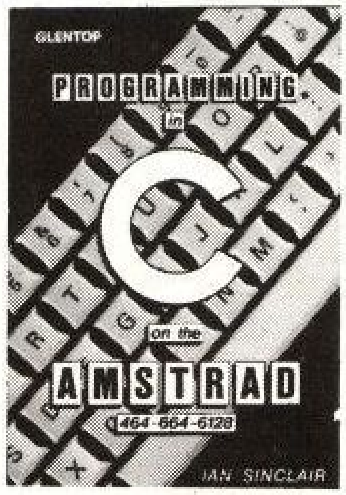
STARTING BASIC £4.95



SOUND, GRAPHICS & DATA HANDLING £5.95

PROGRAMMING IN 'C'

Hisofts "C" on Amstrad Microcomputers.

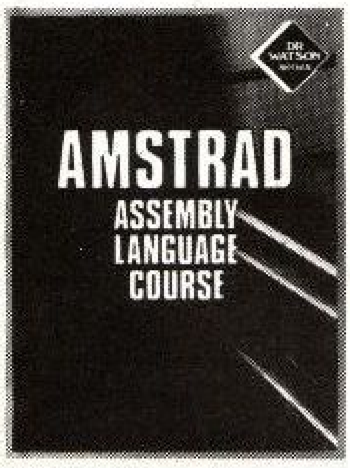


This book assumes that the reader is familiar with Locomotive BASIC and frequently compares this with 'C'. The author has taken every opportunity to show the reader the new ways of programming available, and has included many reminders about old BASIC habits that must be abandoned.

Because of the close interrelationship between the way programs are designed and the way they are written, the author links these topics together. The book has been written entirely around the conventional 'top-down' method of structured programming, a method designed to make complex programs relatively easy to write and understand.

This book is suitable for users of the Amstrad CPC464, CPC664, and the CPC6128.

£8.95



BOOK & TAPE/DISC

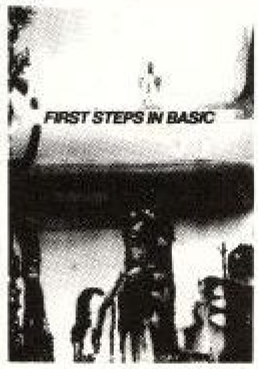
This step-by-step text introduces the complete beginner to Z80 programming. No prior knowledge is assumed and the aim throughout the book is to ensure that the beginner really succeeds. By the end of the book every Z80 class of instruction has been explained in detail. Numerous examples illustrate the points while exercises (along with solutions) test the understanding. Later chapters show how additional commands may be added to BASIC including, for example, a circle drawing routine.

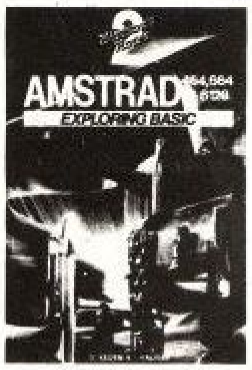
The Software

The complete Z80 assembler which is included on tape includes:

- Symbolic Labels
- Assembler Directives
- Save/Load
- Hard-copy
- Insert/Delete
- Hexadecimal & Binary Tutor

TAPE £12.50 DISC £17.95





THE YOUNGER SET

Designed for 9 years and upwards.

Unit 1: **FIRST STEPS IN BASIC** **£2.95**
Starting with the first things every programmer need to know, you will learn to issue commands to the computer, as well as writing and running programes. By the end of the unit you'll be able to make your computer perform useful and interesting tasks.

Unit 2: **EXPLORING BASIC** **£2.95**
This unit teaches you the most important concepts of BASIC: numeric variables, string variables, FOR...NEXT and IF...THEN statements, and much more. You'll create a digital computer clock, and interesting graphics programs including animation.

Unit 3: **COMPUTER GAMES** **£3.95**
In this unit you will learn to develop various computer video games. As you progress through the unit, new programming concepts such as random numbers will be introduced. By the end you'll have considerable programming skills.

GLENTOP

PUBLISHERS □ LIMITED

STANDFAST HOUSE, BATH PLACE, HIGH STREET, BARNET, HERTS EN5 5XE TELEPHONE: 01-441 4130 TELEX: 22828



SEEK AND YE SHALL FIND...

Into adventures with Bill Brock

Ancient and modern

Taskset is better known for its arcade games, some of which have stood the test of time and even after much playing, still get an airing when a jaded computer gamer needs a little relaxation.

Now Taskset presents us with what is, I believe, its first venture into adventures – Souls of Darkon.

This has a fairly standard plot. You play the hero who will hopefully free a world from the ravages of its evil overlord Darkon. In this case the world is the planet Megron, you happen to be bionic and you are accompanied by your faithful robotic friend Komputa.

The history of Megron is full of technical progress followed by a deeper and deeper pursuit of the powers lying within man himself. This knowledge finally releasing the awesome Darkon. There are no clues as to how you can defeat him so you must rely upon both your wits and what you can find on Megron itself.

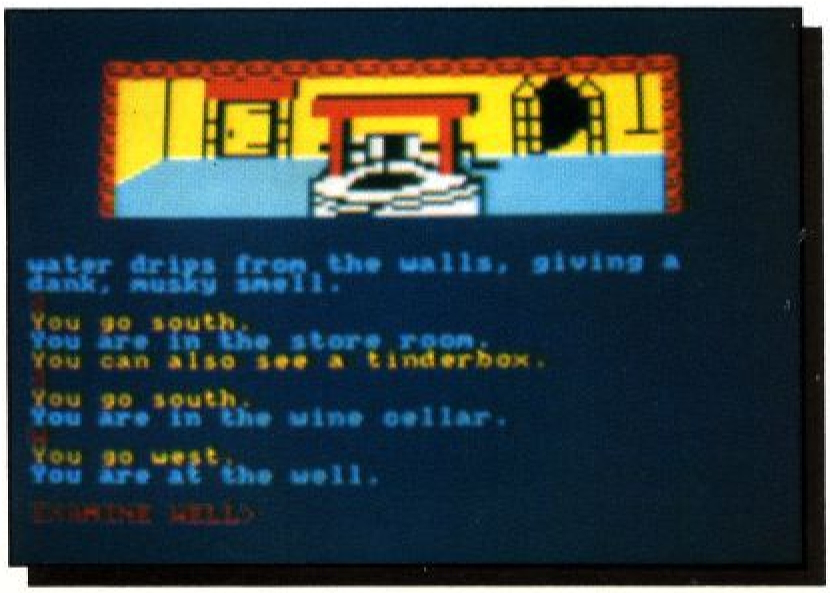
There seems to be a strange mixture of ultra modern technology and plain old medieval artifacts such as swords and maces lying around. Make the most of what you can find, for there are plenty of things hidden in this game – 18 possibly useful objects in the first 10 locations and I'm not sure I have found everything there is to find yet.

For every location there is a text panel at the top of the screen that describes your immediate surroundings – but not what may be lying around for you to pick up. Below this, the screen is split in two, with a high resolution picture of the location on the left and on the right a scrolling text window that displays the replies to your input commands.

As is the fashion in some adventure game circles, the character set has been redesigned but for once, it is fairly readable. The graphics are black on green – not exactly inspiring but the pictures are clear enough so perhaps one should not be too critical of the choice of colours.

Multi-word commands of the type "Attack the man with the sword" can be input but as the vocabulary is somewhat limited there are not many occasions where these can result in any very inspired interaction. "VOCAB" or "V" will display the verbs that are understood and I found I was all too often scanning this list in the hope that I would find an alternative to the word I wanted to use.

Although the location description remains on the screen while you ferret around, you are not automatically informed of what you might have uncovered. Frequent use of Look is to be recommended.



Well, well, well – it's Ashkeron



Help is recognised by the parser but does not bring any immediate assistance – try Legend instead. This will produce various useful but cryptic messages (legends) that may lead to your enlightenment.

Reaction to commands and any redrawing of the graphics is reasonably swift and you may type ahead to pass quickly through locations you have already squeezed dry. "Save game" and "Load game" (not "Save" and "Load" as in the instructions) are very quick operations (25 seconds) and as death is always just around the corner, are well worth using.

Every step of your journey seems to involve a puzzle of some sort and one is left with the feeling that some of

these are a little contrived. This is aggravated by the frequent need to Look to see if your commands have actually had any effect.

There are other characters you will meet and interact with but the simplistic vocabulary limits any great conversation. This is definitely not a game for the novice adventurer as progress is restricted to a very few locations until a number of puzzles have been solved.

There are a number of anomalies – not bugs – in the program, things like being told: "You can see an axe and a sword. You can go North and South. You can see nothing of interest". Try to examine your faithful Komputa. You will be told he is not there – don't believe it! You will also get the occasional message like "Infrared mode off". I wonder what that means, and how do you put it back on again?

Standing Stones are said to be East but turn out to be West. Nothing very terrible, but linked with the contrived puzzles this is going to be one of those games adventurers will either love or hate.



Grimor makes a meal of you in Souls of Darkon

Lost in the wood

Mirrorsoft is a very active software house but its principal support seems to be for the BBC Micro and Spectrum – not our favourite little beastie. Some time last year an adventure game for the Amstrad slipped out without causing much of a ripple – perhaps we should pester them for more!

Ashkeron! is worth looking for, especially for the less experienced among us. Do not think it is going to be a walkover for the hardened adventurer – it is not – but it has the attraction of having lots to find, plenty of locations to practise your mapping techniques and its fair share of good logical puzzles to keep the old grey matter warmed up.

Some people decry many of the classic swords and sorcery plots as being old hat. I would rather look at the game play and presentation than hold forth on whether the plot is entirely new.

Ashkeron! is in essence a treasure hunt. Five treasures have been purloined from the royal vaults in Ashkeron and the impending marriage of Princess Zeraphina will be cursed if the traditional dowry cannot be found to solemnise the event.

You play the part of Stephen the blacksmith, elected to be the hero who will rescue these treasures from the castle of the Wicked Wizard. The game starts at the crack of dawn on the day of the Spring equinox, with Stephen outside the castle. The game is played in real time, so in theory you must keep your senses honed and make quick decisions on what your next move will be.

There is no pause command but fortunately the presence of any input – even a single character – is detected and time is halted to allow you to complete your command. Being devious you could of course type in any letter and then go and make your pot of coffee, come back, think about things, delete that character and enter the proper command.

The display has a picture of your location at the top of the screen with its description beneath. Input commands are entered at the bottom of the screen and



Title screen from Souls of Darkon

STOP PRESS

Souls of Darkon is soon to be re-released by Argus Press Software.

the results of your commands appear beneath the description. All inputs are actioned fairly quickly with the graphics replaced by the next location in rather an original scrolling manner.

This scrolling is a good way to mask the time required to draw the next scene. They only take six seconds to appear anyway but it's neat, very neat. There are also some sound effects that hardly help the story and quite honestly I wish I could turn them off – thank goodness the Amstrad has a volume control.

The first hurdle is to get into the castle – if you wander around outside you will almost certainly get lost in the forest. After a short time a cart will arrive. The drawbridge is lowered, the cart trundles inside and the drawbridge is raised. Shortly afterwards, it appears again on its homeward journey.

Obviously you have to find a way to climb into the cart – it's just a matter of typing the right words. Should you not get it right the first time, there are plenty of carts on their way to the castle. Just hang around for the next one to roll up and enter.

Having got inside, enjoy yourself – there are lots of rooms to explore and several people to talk to. At random intervals there will be attacks from a slimy green dwarf. Eventually he will find your heart with his sword. Let this be a lesson – you must save the game position at several places to avoid having to repeat your initial moves.

Make a list of what you find and try to fathom out what can be used for what – never forget your main purpose for being there and keep a weather eye open for where those five valuable objects may be hidden.

There are other random events in addition to that slimy dwarf. The Wizard may put in an appearance and reverse things – North is South, get is drop – ugh! There is also a castle guard on the first floor who is on the lookout for intruders. Listen out for his heavy footsteps and something to make you invisible.

The valuable Help command is recognised and for the cost of a couple of points off your score you can get a cryptic clue to your present plight.

Ashkeron! is good fun and ideal for the novice – you may even use a joystick for the direction commands if you want to. having solved the standard game you can elect to have all the useful objects placed randomly around the castle and have another go.

Input . . .

Keep those letters coming in – we will soon be able to give you some idea of our readers' top 10 in the adventure jungle. At the moment it looks as though Jewels of Babylon by Interceptor Micros is a very firm favourite.

Where possible I will write to those in dire need as this column takes an age to go through the process of being printed. I know what it is like when you are stuck.

One husband and wife team have written in to offer their help to beleaguered adventurers on The Hobbit, Return to Eden, Emerald Isle, Red Moon, Ring of Darkness, Dun Darach, Lords of Midnight, and Warlord.

Maurice and Joan Pancott can be reached at 78 Radipole Lane, Weymouth, Dorset DT4 9RS, or by telephone on 0305 784155. Many thanks M and J, I hope your swords remain forever sharp.

Barry Newell of Grays, Essex, sent us a useful set of cryptic clues for Jewels of Babylon and Message from Andromeda. Great stuff Barry, but you forgot to enclose your address. If you want a quick reply, a stamped addressed envelope is always looked on with pleasure – perhaps a telephone number will get even quicker results.

Join up . . .

Just how keen on adventures are you? Judging by your letters and those that I meet at shows and even in the local computer shops, we are a growing band. There are many people who spend a great deal of time with their fingers poised over the keyboard typing in such words as Look, Examine and I for inventory.

Several of the software houses who in the past have been solely producing arcade games have now got one or more adventures on their books. There are adventure columns in nearly every magazine and a growing number of independent, privately produced, dedicated adventure magazines.

The latter are usually photocopied affairs crammed with news, views and reviews. Some appear at irregular intervals, some on a regular monthly basis. You may think that with so many people all looking at the same source material that they would all be repeating the same things about the same games – not so. Each reviewer has his own ideas as to what makes a game a winner or loser.

There are those games that stand out as winners in everybody's book and there are those that get a big universal thumbs down! Fortunately nowadays, this last category is thin on the ground. But although the appeal of adventures is widespread, not everybody likes to play the same type of game. The trick is to find the columnist or reviewer with a similar taste to yourself.

A regular adventure column should try to be as impartial as possible and a good reviewer should also have spent a fair time trying to solve the adventures. We are not super-heroes, able to solve every game in just a few hours, but we do have the experience of dozens of adventurers to draw upon. The more you read, the more likely you are to be able to judge which games are for you.

One new independent 'zine (his word not mine!) is Orcsbane, edited by Nick Walkland of 84 Kendal Road, Sheffield S6 4QH. Cost of a single issue is 50p or a year's subscription at £3. Issue 2 had 36 pages of photocopied info, maps, letters and general burble – can't be bad at that price. I just hope Nick's photocopier is working better for the next issue.

Probably the best known independent is the Adventurers Club of 64c Menelik Road, London NW2 3RH, who produce a 20-page monthly dossier. This will knock you back £10.95 yearly and is a more professional set-up linked with discounted software, a phone-in help line, competitions and various other offers. Those concerned with the Adventurers Club are all avid and dedicated adventurers – why not write and get some more gen on your favourite pastime (obsession). ACU



THINKING THINK

TASWORD 6128
THE WORD PROCESSOR

TASWORD 6128 for the Amstrad CPC 6128 disc £24.95

Brilliant value for money.
AMSTRAD ACTION
December 1985.

A powerful and easy to use word processor and a superb data merge program. AMTIX December 1985.

TASWORD 6128 is the word processor especially developed to utilise the extra memory in the CPC 6128.

The program uses ALL the additional 64K of memory in the CPC 6128 as text space. This means that text files can be around ten thousand words long.

TASWORD 6128 includes a built-in data merge program. Mail merge, in which a letter is printed any number of times, each individually addressed to a different person, is just one of the applications of this powerful facility.

The notepads are a unique feature of TASWORD 6128. Four separate notepads are available. Typing reminders and storing letter headings are just two possible applications for the notepads.

Up to one thousand characters can be stored in ten user definable keys allowing commonly used words, sentences, or even paragraphs to be typed with a single keypress.

TASWORD 6128 has comprehensive customisation features. These allow many of the program facilities to be changed to personal requirements. A customised program can be saved and includes the notepads and user definable keys.

TASWORD 6128 is fully compatible with TAS-SPELL and TASPRINT. It will also read in data from Masterfile 6128. It can even be used to enter and edit your own Basic programs.

With all standard and many extra word processing facilities TASWORD 6128 is the most powerful of the TASWORDS.

TASWORD 464
THE WORD PROCESSOR

TASWORD 464 cassette £19.95

"There is no better justification for buying a 464 than this program"
POPULAR COMPUTING WEEKLY, NOVEMBER 1984

Your 464 becomes a professional standard word processor with TASWORD 464. Supplied complete with a comprehensive manual and a cassette which contains both the program and TASWORD 464 TUTOR. This teaches you word processing using TASWORD 464. Whether you have serious applications or simply want to learn about word processing, TASWORD 464 and the TUTOR make it easy and enjoyable.

TASWORD 464-D
THE WORD PROCESSOR – WITH MAIL MERGE!

TASWORD 464-D disc £24.95

This is the new TASWORD especially developed to utilise the capabilities of the CPC 464 and 664 disc drives. The additional facilities include a larger text file size and automatic on-screen disc directories during save and load operations. A major new feature is the mail merge facility. This gives multiple prints of your standard letters, forms, etc., with each copy containing, for example, a name and address automatically taken from a disc file containing the data. This data can be entered using TASWORD 464-D, or created using the Masterfile Program Extension package. A powerful and useful conditional printing facility is included – parts of a document can be printed according to user-specified criteria. TASWORD 464-D will only run on, and is only supplied on, disc.

Available from good

Tasm
SOFT

Springfield House, Hyde Terrace,

Overseas. The following distributors of Tasman products may be contacted for the address of local suppliers. Many products are supplied in translated form. FRANCE & SWITZERLAND Semaphore Logiciels, CH 1283 La Plaine, Geneva. SCANDINAVIA Kelly data, Postboks 43, Refstad, Oslo. NETHERLANDS Filosoft, PO Box 1353, 9701 BJ Groningen. U.S.A. Ramex International,

STOP PRESS

8256 MEMORY/RAM DISC UPGRADE TO 368k £60

EXPANDABLE INTERFACE FOR THE AMSTRAD CPC 464/664/6128

DUAL RS232 – FULL EXPANDABLE INTERFACE (For Modems, Printer, Touchpad)

2 Ports – 25 Pin Socket with Modem Handshake Signals 5 Pin Domino, uses BBC Serial Cable. Dual RS232, 8 Bit Printer Port, 8 Bit Parallel 1/0 User Port, Software on Rom, 2 × Sideways Rom Sockets. **£89.00**

CPM FILE TRANSFER SOFTWARE

To enable file transfer from Apricot, IBM, Mainframe, many other CPM Machines. Also enables use of Telecom Gold, Micronet and other information systems.

TIMDISC 5¼" 2nd DISK DRIVE

Software Portability, can read and write S/S CPM Disks for IBM and Compatibles (156K).

(Please specify for 464/664 or 6128 **£149.00**

Also Available 3" Second Drive **£89.00**

New 1MB 5¼" Disc Drive (CP/M Plus) includes multi format software. **£249.00**

8256 2nd Drive **£159 + VAT**

X ROM EPROM PROGRAMME/SIDEWAYS ROM CARD

464/664/6128 with 4 × Sideways ROM sockets – Programmes 2764 and 27128 Eproms **£79.00**

8256 in stock **6128 in stock**

OVER 500 AMSTRAD CASSETTE TITLES OVER 200 NOW ON DISK IN STOCK.

FULL BUSINESS SOFTWARE RANGE includes:

6128, 8256, Software - Inc - Wordstar, £119.00

Neword	£69.95	Sage Chit-Chat	P.O.A.
Supercalc II	£49.95	Sage Popular Accounts	£99.95
Cardbox	£99.95	Sage Payroll	£69.95
Turbo Pascal	£69.00	Cash Trader	£114.95
Nevada Fortran	£39.95	Camsoft Payroll	£39.00
Cobol	£39.95	Database	£39.00
Pascal	£39.95	Invoicing	£39.00
Dr. Pascal	£49.95	Brainstorm	£49.95
Quest ABC, Business Suite	£149.95	Touch and Go	£29.00

Many other Titles in Stock, Please enquire.

SIDEWAYS ROM

Arnor Prospell (Eprom) now available	£34.95
Arnor Maxam Assembler on Rom	£49.00
Arnor Maxam Rom (Fits Timatic Interface)	£39.00
Arnor Disc Utility on Rom	£29.95
Arnor Word Processor on Rom	£39.95
MicroPro Rom Card	£39.00
MicroPro Programmers Toolkit Rom	£39.00
Prestel Rom (Fits Timatic Interface)	£19.95

All the latest games as soon as released.

Speech Synthesizers – From **£29.95**

TAPE TO DISC TRANSFERS

MODEMS, CPC 464, CPC 664, CPC 6128, PRINTERS

AMSTRAD RS 232 – **£49.00**

8256 – RS232/CENT – £59.00 + VAT

Please send sae for full list to:

Mail order welcome,
All Prices include VAT.

TIMATIC SYSTEMS LTD

DEALER ENQUIRIES WELCOME

FAREHAM MARKET
FAREHAM, HANTS
Tel: FAREHAM (0329) 236727
(0329) 239953

SIREN SOFTWARE

NEW ** MASTER DISC ** NEW

The only Disc Utility Package you will ever need. This disc does it all!!

IMAGE	– Back up your discs (including funny formats etc.)
DIRECTORY EDITOR	– Unerase files, show hidden files, secure files etc.
SPEEDFORM	– Lightning fast formatter.
SECTOR EDITOR	– Complete sector editor.
DE PROTECTOR	– DeProtect Basic programs.
DISC HEADER	– Display start, length, execute addresses etc.
TAPE HEADER	– As disc header but for tape.
TRANS FILE	– Transfer individual files from disc to disc/disc to tape.
DISC MAP	– Displays how files are stored on disc.
TYPE FILE	– Displays on screen/printer any Ascii file.
DUMP FILE	– Display in Hex/Ascii format the contents of a file.
ZIP DISC	– Speed up your drive by upto 20%.

464/664/6128 DISC ONLY £12.99

DISCOVERY – Tape to Disc Transfer

The only tape to disc transfer program to handle Turbo Loaders and alters Basic programs. Adds relocaters, automatic and manual mode. Catalogue, full catalogue, erase, rename etc. Tape header reader.

"Probably the best of the tape-to-disc copiers" Amstrad Action, March.

"Discovery does it best across the widest range of games" Amstrad Action, Feb. '86

464, 664, 6128 DISC £11.99 TAPE £7.99

*** DISKON ***

Put those headerless programs onto disc. This unique program allows you to manipulate programs to get them running from disc. Not recommended for the novice.

464, 664, 6128 DISC £13.99

TAPE UTILITY V3.4

Back up your software with ease, the latest version. Now handles more Turbo Loaders as well as normal and headerless programs. Built in header reader, protection remover etc. choice of 10 speeds up to 4000 baud.

464 ONLY £6.99 TAPE

For speedy delivery send cheques/P.O.s to: **SIREN SOFTWARE 76 Bridge Street, Manchester M3 2RJ. Tel: 061-796 6874** Overseas customers please add £1.00.

SIREN SOFTWARE

RECOMMENDED BY THE PROFESSIONALS*

For the Amstrad PCW 8256



The new DATA Gem

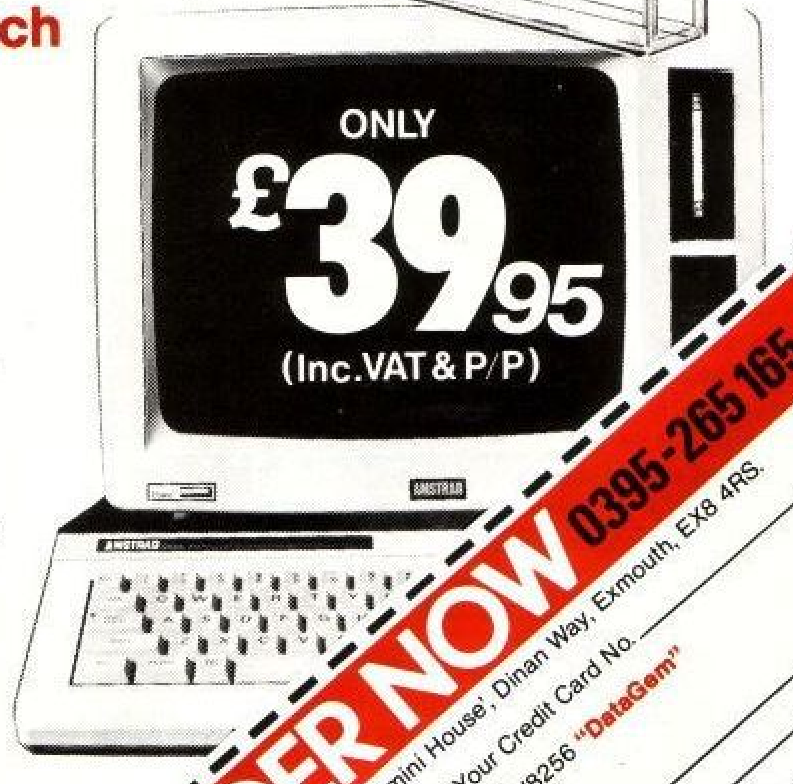
*Looking for **FAST** access to stored data? Want to create customised reports, mailing labels, office and personal records with **NO** technical knowledge? Then DataGem is for you!

48 Hour Dispatch

- DataGem is **the** database for the 8256. **It has been specifically designed and written for the 8256** (it hasn't been 'ported' down from older machines) and makes full use of its special features. Examples are supplied with the software.
- Gemini is one of the longest established and most respected software houses. We've been writing superior software for years, but more than that we offer a continuing service for as long as you need it, not just for a fixed period.
- DataGem is only the first of an exciting new range of serious software for the 8256. This includes Gemini's already legendary cashbook and final accounts packages.
- **Just 48 hours after we've received your instructions DataGem will be dispatched to your door.** Either fill in the coupon and enclose a cheque or, if you're an Access or Amex holder, please call our credit card hotline.
- If DataGem doesn't prove to be value for money, send it back! If you return it complete and undamaged within seven days we'll refund your money with no quibble.

Check that out with the 'competition'

Distributed to the trade by CentreSoft 021-359-3020.



ONLY £39.95 (Inc.VAT & P/P)

Gemini MAIL ORDER

ORDER NOW 0395-265 165

Post to: Gemini Marketing Limited, 'Gemini House', Dinan Way, Exmouth, EX8 4RS.

Please send me further information ☐ Your Credit Card No. ____

Please send me the new Amstrad PCW8256 "DataGem" Priced **£39.95** (inc. VAT + P/P)

Name ____

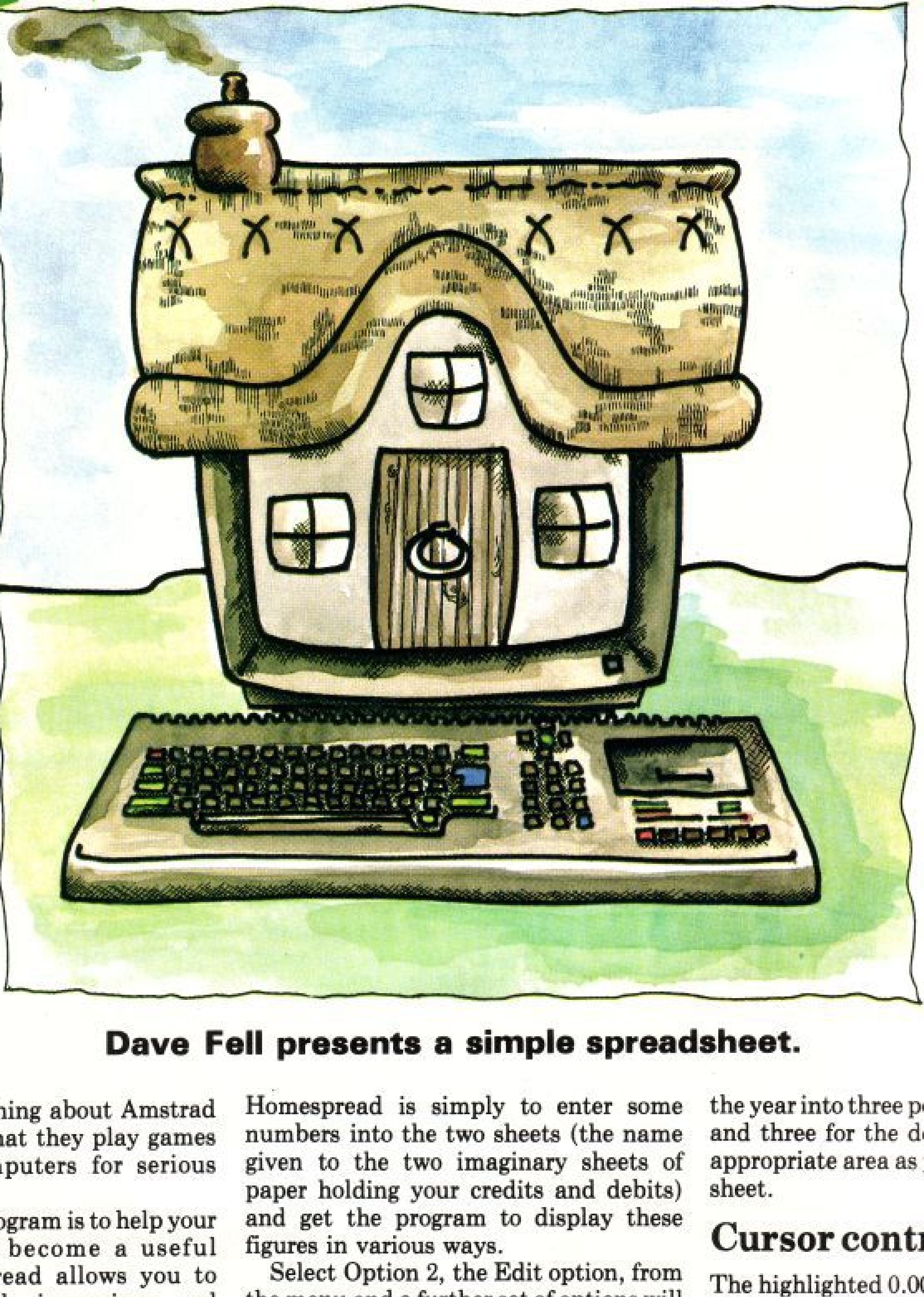
Address ____

Post code ____

24 HOURS CREDIT CARD HOTLINE 0395-265165 (4 lines)

ACU 5

Home, Sweet Homespread



Dave Fell presents a simple spreadsheet.

One really special thing about Amstrad computer users is that they play games *and* use their computers for serious applications.

The aim of this program is to help your Amstrad CPC to become a useful machine. Homespread allows you to enter your monthly incomings and outgoings, and to display various summaries of this data to help you to get a better idea of where your money is going.

Using the program is really very simple – menus guide you to the available choices and supplement the detailed information given here.

The program is written entirely in Basic and could easily be modified by the adventurous user to include many more features.

Run

Having entered the listing and saved a copy to tape or disc, run the program and the title screen will be displayed.

The first step in getting to know Homespread is simply to enter some numbers into the two sheets (the name given to the two imaginary sheets of paper holding your credits and debits) and get the program to display these figures in various ways.

Select Option 2, the Edit option, from the menu and a further set of options will be displayed. The item of interest here at this stage is Option 1, the Edit Credit Sheet option.

Press the key and the credit sheet will be displayed. Twenty credit and 20 debit entries are allowed for each month, with each figure being in the range 0 to 999.99

Everything is displayed in mode 1, the Amstrad's 40 column mode. This means that only four months' worth of data can be accommodated at once on the screen but it is much easier to read on a colour monitor.

Unfortunately, of course, there are 12 months in the year and not enough space to accommodate all the information on the screen.

To overcome this Homespread splits the year into three portions for the credits and three for the debits, displaying the appropriate area as you move around the sheet.

Cursor control

The highlighted 0.00 at the top left of the screen is the position of the current entry cell. Try pressing the right cursor key – the cell moves to the right each time you press it.

When the current cell reaches the edge of the screen, the program automatically displays the next portion of the sheet. The program is written in Basic, so redisplaying the screen takes a while.

Try moving the cursor around as much as you want, in any direction. You can't do any harm and the practice is useful.

Enter the data

Once you've mastered this you're ready to enter some data. The program keeps a separate number, called the entry value. This is used to enter a value which can

```
10 REM Home Accounts Program
20 REM By Doznog III
30 REM 2/12/86
40 REM For CPC User Magazine
50 :
400 GOSUB 1000:'titles and inits
410 q=0:WHILE q=0:RESTORE 20000:GOSUB 10000
420 ON a GOSUB 2000,3000,4000,500
430 WEND:CLS:PRINT"Program Terminated.":END
500 e$="Exit the Program":GOSUB 11180:IF a$="Y" THEN q=-1
510 RETURN
1000 DEFINT e,i,j,k,l,q,x-z:which=0:sheet=0:DIM array(11,39),bcf(39)
1010 DIM heading$(39),month$(11):DEF FNi(i)=(i MOD 4)*8+9:DEF FNx=x+sheet
1020 DEF FNx=x+sheet:DEF FNy=y+which
1030 MODE 1:a=1:a$="Home Accounts":GOSUB 10090
1040 a$="By Doznog III":GOSUB 10090:a$="For CPC User Magazine":GOSUB 10090
1050 LOCATE 1,20:GOSUB 11150:CLS:m$="####.##":n$="#######.##"
1060 xd1=20:RESTORE 20400:FOR i=0 TO 11:READ month$(i):NEXT
1070 FOR i=0 TO 19:heading$(i)="Cred"+STR$(i+1)
1080 heading$(i+20)="Debit"+RIGHT$(STR$(i+1),2):NEXT:RETURN
2000 RESTORE 20100:GOSUB 10000
2010 IF a=5 THEN RETURN ELSE ON a GOSUB 2100,2200,2300,2400
2020 GOTO 2000
2100 CLS:a=1:a$="Loading Data Option":GOSUB 10090:GOSUB 11200
2110 OPENIN a$:c=9:' cassette file handle
2120 FOR i=0 TO 39:INPUT#c,heading$(i)
2130 FOR j=0 TO 11:INPUT#c,array(j,i)
2140 NEXT:NEXT:CLOSEIN:RETURN
2200 CLS:a=1:a$="Saving Data Option":GOSUB 10090:GOSUB 11200
2210 OPENOUT a$:c=9:' cassette file handle
2220 FOR i=0 TO 39:PRINT#c,heading$(i)
2230 FOR j=0 TO 11:PRINT#c,array(j,i)
2240 NEXT:NEXT:CLOSEOUT:RETURN
2300 e$="Wipe All Data":GOSUB 11180: IF a$="N" THEN RETURN
2310 FOR i=0 TO 11:FOR j=0 TO 39:array(i,j)=0:NEXT:NEXT:RETURN
2400 e$="Continue Sheet":GOSUB 11180:IF a$="N" THEN RETURN ELSE CLS:a=1
2410 a$="Continue Sheet Option":GOSUB 10090:a=a+3:a$="Calculating"
2420 GOSUB 11000:GOSUB 11300:LOCATE 1,5
2430 PRINT"Do you wish for the summarised data to  be left in the January column for each  credit and debit entry or do you wish   these to be further summarised into justthe first cell for credit and debit?"
2440 PRINT:PRINT"Answer Y for the extra summarisation":GOSUB 2310
2450 a$="Further Summarisation":LOCATE 1,15:GOSUB 11130
2460 FOR i=0 TO 39:array(0,i)=bcf(i):NEXT
2470 IF a$="N" THEN RETURN ELSE FOR i=1 TO 19:array(0,0)=array(0,0)+array(0,i)
2480 array(0,20)=array(0,20)+array(0,i+20):array(0,i)=0:array(0,i+20)=0
2490 NEXT:RETURN
3000 RESTORE 20200:GOSUB 10000
3010 IF a=5 THEN RETURN ELSE ON a GOSUB 3100,3200,3300,3400
3020 GOTO 3000
3100 which=xc1:sheet=yc1:x=xc2:y=yc2:GOSUB 3410
3110 xc1=which:yc1=sheet:xc2=x:yc2=y:RETURN
3200 which=xd1:sheet=yd1:x=xd2:y=yd2:GOSUB 3410
3210 xd1=which:yd1=sheet:xd2=x:yd2=y:RETURN
3300 i=-1:WHILE i<>0:CLS:a=1:a$="Edit Heading Option":GOSUB 10090:LOCATE 1,3
3310 FOR i=0 TO 19:PRINT;i+1;TAB(5)heading$(i);TAB(20);i+21;TAB(25);
3320 PRINT heading$(i+20):NEXT:i=-1:WHILE i<0 OR i>40:a=25:GOSUB 11170
3330 INPUT"Edit which heading (ENTER=exit) ",i:WEND:a$=""
3340 IF i<>0 THEN GOSUB 3370
3360 WEND:RETURN
3370 WHILE a$="" OR LEN(a$)>7:GOSUB 11170:PRINT"Heading is '";heading$(i-1);
3380 PRINT"'. New=";:INPUT"",a$:WEND:heading$(i-1)=a$:RETURN
3400 e$="Restore Default Headings":GOSUB 11180:IF a$="Y" THEN 1060 ELSE RETURN
3410 e$="":c=0:CLS:GOSUB 11400
3420 WHILE c=0:GOSUB 11450:GOSUB 11500:GOSUB 11100:GOSUB 11460:k=ASC(a$)
3425 i=INSTR(e$,"."):l=LEN(e$)
3430 IF k=9 THEN c=-1:' exit condition
3440 IF k=13 THEN GOSUB 5110:' enter value into current cell
3450 IF k=46 THEN GOSUB 5020:' attempt fullstop add
3460 IF k=127 THEN GOSUB 5050:' delete character from number if possible
3470 IF k=16 THEN GOSUB 5080:' clear current cell
3480 IF k=224 THEN GOSUB 5090:' copy cell action
3490 IF k=240 THEN GOSUB 5120:' move cell up
3500 IF k=241 THEN GOSUB 5140:' move cell down
3510 IF k=242 THEN GOSUB 5150:' move cell left
3520 IF k=243 THEN GOSUB 5180:' move cell right
3530 IF k=68 THEN GOSUB 5200:' deal with duplicate action
3540 IF k>47 AND k<58 THEN GOSUB 5000:' add number code
3600 WEND:RETURN
4000 RESTORE 20300:GOSUB 10000
4010 IF a=4 THEN RETURN ELSE ON a GOSUB 4100,4200,4300
4020 GOTO 4000
4100 c=8:' printer handle
4110 PRINT#c,TAB(19)"Home Accounts - Credits and Debits":PRINT#c:PRINT#c
4120 a=0:GOSUB 4130:a=6:GOSUB 4130:PRINT#c:PRINT#c:MODE 1:RETURN
4130 FOR i=a TO a+5:PRINT#c,TAB((i MOD 6)*11+15)month$(i);:NEXT:PRINT#c:PRINT#c
4140 FOR j=0 TO 39:PRINT#c,heading$(j);:FOR i=a TO a+5
4150 PRINT#c,TAB((i MOD 6)*11+10);:PRINT#c,USING n$;array(i,j);:NEXT
4160 PRINT#c:IF j=19 THEN PRINT#c:PRINT#c
4170 NEXT:PRINT#c:PRINT#c:PRINT#c:RETURN
4200 c=8:' printer handle
4205 GOSUB 11300
4210 PRINT#c,TAB(14)"Home Accounts - Yearly debit and Credit totals":PRINT#c
4220 PRINT#c:PRINT#c:FOR i=0 TO 19:PRINT#c,heading$(i);TAB(10);
4230 PRINT#c,USING n$;bcf(i);:PRINT#c,TAB(40)heading$(i+20);TAB(50);
4240 PRINT#c,USING n$;bcf(i+20):NEXT:PRINT#c:PRINT#c:PRINT#c
4245 GOSUB 11350
4250 PRINT#c,TAB(24)"Home Accounts - Monthly Balances":PRINT#c:PRINT#c:PRINT#c
4260 PRINT#c,TAB(10)"Month Only Balances"TAB(50)"Carried on Balances":PRINT#c
4270 FOR i=0 TO 11:PRINT#c,month$(i)TAB(15);:PRINT#c,USING n$;bcf(i);
4280 PRINT#c,TAB(50);:PRINT#c,USING n$;bcf(i+13):NEXT
4290 MODE 1:RETURN:' delete from final program the mode change.
4300 CLS:GOSUB 11110:PRINT"Credit Summary";:LOCATE 25,1:PRINT"Debit Summary"
4310 GOSUB 11120:PRINT:GOSUB 11300:FOR i=0 TO 19
4320 PRINT heading$(i);TAB(8);:PRINT USING n$;bcf(i);:PRINT TAB(20);
4330 PRINT heading$(i+20);TAB(28);:PRINT
```

then be transferred to the right place on the sheet, known as a cell.

The value is transferred simply by pressing Enter. The value of the entry value is displayed at the bottom right of the edit screen as the "Entry is 0.00" figure.

If you type in a number, say 123, you will see this appear at the "entry is" location on the screen. The program handles decimals slightly differently from the way you may be used to.

When you want to enter a decimal part of a number, simply press the "." key and then enter the decimal point. If you have entered a wrong digit you can delete it with the Del key.

However if you delete the one closest to the decimal point, you also effectively delete the decimal point. This allows further digits to be added.

The best way to fully understand this system is simply to try entering some numbers. Combine the entry of numbers here with moving the current cell around with the cursor keys and pressing Enter to copy the entry value to the current cell.

Doubling up your wages

Typically at least one of the entries in your credit sheet would be a regular figure, such as your wages. To save you having to type the same number in repeatedly, there are duplicating features available in the sheet mode.

The first one is the Copy key, which copies the value from the cell to the left to the current cell. The potential copy value

is always displayed at the bottom left of the screen.

As there is no cell to the left of the January column, the word "invalid" is displayed whenever you are in that column. If you attempt to copy while this message is displayed, another message is printed at the bottom of the screen to remind you that you cannot do it.

The major duplication features are called up by pressing the D key while in sheet mode. This presents you with the option of duplicating either horizontally or vertially. The effect of the duplication is to copy the value of the current cell to all the entries for either a given month (vertical copy) or for a given credit or debit entry (horizontal copy).

Pressing the E key at this point returns you to normal sheet mode. When the duplicating is taking place you have the option of overwriting cells already in use – cells that contain a value other than zero. Whether you select this option obviously depends on the particular application you are using the program for.

The Tab key is used to exit from sheet mode to the editing options menu. The cursor position in both the credit and debit sheets is stored when you exit, and it is to this position that you are returned when you next select the edit mode for this particular sheet.

From the main menu, the Sheet options menu allows you to load and save the data (or sheets) to tape or disc. This is fairly simple, with just the data filename being required to be entered.

Control of the tape is prompted as when saving a Basic program. The Wipe Sheet option simply clears all the cells in

```
       USING n$;bcf(i+20):NEXT
4340 LOCATE 1,25:GOSUB 11150:CLS:a=1:a$=
       "Monthly Balances":GOSUB 10090
4350 LOCATE 1,4:GOSUB 11350:GOSUB 11110:
       PRINT"One Month Only";:LOCATE 25,4
4360 PRINT"Running Balance":GOSUB 11120:
       PRINT:FOR i=0 TO 11
4370 PRINT month$(i)TAB(12);:PRINT USING
       n$;bcf(i);:PRINT TAB(30);
4380 PRINT USING n$;bcf(i+13):NEXT:LOCAT
       E 1,25:GOTO 11150
5000 IF e$="0" THEN e$=a$:RETURN
5010 IF (i=0 AND l<4) OR (l-i<2 AND i<>0
       ) THEN e$=e$+a$:RETURN ELSE RETURN
5020 IF e$="" THEN e$="0.":RETURN
5030 IF i=0 AND l<5 THEN e$=e$+a$
5040 RETURN
5050 IF e$="0." THEN e$="":RETURN
5055 IF i<>0 AND (i=l OR i=l-1) THEN e$=
       LEFT$(e$,l-2):RETURN
5060 IF (i=0 AND l>0) OR (i<>0 AND l-i>0
       ) THEN e$=LEFT$(e$,l-1)
5070 RETURN
5080 array(FNx,FNy)=0:RETURN
5090 IF FNx=0 THEN a$="Can't copy from e
       dge of sheet":GOTO 11600
5100 array(FNx,FNy)=array(FNx-1,FNy):RET
       URN
5110 array(FNx,FNy)=VAL(e$):e$="":RETURN
5120 y=y-1:IF y=-1 THEN y=19
5130 RETURN
5140 y=(y+1) MOD 20:RETURN
5150 x=x-1:IF x=-1 THEN x=3 ELSE RETURN
5160 sheet=sheet-4:IF sheet=-4 THEN shee
       t=8
5170 GOTO 11400
5180 x=x+1:IF x=4 THEN x=0 ELSE RETURN
5190 sheet=(sheet+4) MOD 12:GOTO 11400
5200 FOR a=25 TO 22 STEP -1:GOSUB 11170:
       NEXT:PRINT:PRINT"Duplicate Cells"
5210 PRINT"Duplicate Horizontal, Vertica
       l or Exit":PRINT"Enter H/V/E:";
5220 a$="":WHILE a$<>"H" AND a$<>"V" AND
        a$<>"E":GOSUB 11100:WEND
5230 IF a$="E" THEN RETURN ELSE PRINT:i=
       a$="V":a=25:GOSUB 11170:a=24
5240 GOSUB 11170:PRINT"Overwrite cells a
       lready filled (Y/N)";:GOSUB 11140
5250 IF i THEN 5300 ELSE FOR i=0 TO 11
5260 IF array(i,FNy)<>0 AND a$="Y" THEN
       array (i,FNy)=array(FNx,FNy)
5270 IF array(i,FNy)=0 THEN array(i,FNy)
       =array(FNx,FNy)
5280 NEXT:GOSUB 11400:GOTO 11500
5300 FOR j=which TO which+19
5310 IF array(FNx,j)<>0 AND a$="Y" THEN
       array(FNx,j)=array(FNx,FNy)
```

```
5320 IF array(FNx,j)=0 THEN array(FNx,j)
       =array(FNx,FNy)
5330 NEXT:GOSUB 11400:GOTO 11500
10000 ' menu routine
10010 CLS:n=0:READ a$:a=1:GOSUB 10090:LO
       CATE 1,7
10020 READ a$:WHILE a$<>"*":n=n+1:PRINT
       ;n;TAB(5)a$:READ a$:PRINT:WEND
10030 LOCATE 1,20:PRINT"Please enter you
       r choice: 1 -";n;
10040 GOSUB 11100:a=VAL(a$):IF a<1 OR a>
       n THEN 10040 ELSE RETURN
10090 GOSUB 11110
11000 LOCATE 20-LEN(a$)/2,a:PRINT a$;:a=
       a+2:GOTO 11120
11100 a$="":WHILE a$="":a$=UPPER$(INKEY$
       ):WEND:RETURN
11110 PAPER 1:PEN 0:RETURN
11120 PAPER 0:PEN 1:RETURN
11130 a$=a$+" (Y/N) ":LOCATE 20-LEN(a$)/
       2,VPOS(#0):PRINT a$
11140 WHILE a$<>"Y" AND a$<>"N":GOSUB 11
       100:WEND:RETURN
11150 a=VPOS(#0):GOSUB 11170:GOSUB 11110
       :LOCATE 8,a
11160 PRINT"Press any key to continue:";
       :GOSUB 11120:GOSUB 11100
11170 LOCATE 1,a:PRINT SPACE$(39);:LOCAT
       E 1,a:RETURN
11180 CLS:a=1:a$="W A R N I N G":GOSUB 1
       0090:a$="Confirm that you wish to"
11190 GOSUB 11000:a$=e$:GOSUB 11000:a$="
       ":PRINT:PRINT:GOTO 11130
11200 a$="":WHILE a$="" OR LEN(a$)>16:a=
       10:GOSUB 11170
11210 INPUT"Please enter filename :",a$:
       WEND:RETURN
11300 FOR i=0 TO 39:bcf(i)=0:FOR j=0 TO
       11:bcf(i)=bcf(i)+array(j,i):NEXT
11310 NEXT:RETURN
11350 FOR i=0 TO 11:bcf(i)=0:FOR j=0 TO
       19:bcf(i)=bcf(i)+array(i,j)-array(
       i,j+20):NEXT:NEXT
11360 bcf(12)=0:FOR i=13 TO 24:bcf(i)=bc
       f(i-13)+bcf(i-1):NEXT:RETURN
11400 GOSUB 11110:FOR i=sheet TO sheet+3
       :LOCATE FNi(i)+4,1
11410 PRINT LEFT$(month$(i),3);:NEXT:GOS
       UB 11120:PRINT
11420 FOR j=which TO which+19:PRINT head
       ing$(j);:FOR i=sheet TO sheet+3
11430 PRINT TAB(FNi(i));:PRINT USING m$;
       array(i,j);:NEXT:PRINT:NEXT:RETURN
11450 GOSUB 11110
11460 LOCATE FNi(x),y+2:PRINT USING m$;a
       rray(FNx,FNy);
11470 GOTO 11120
11500 LOCATE 1,23:PRINT USING"Current ce
       ll value:"+m$;array(FNx,FNy);
11510 LOCATE 1,24:PRINT "Cell is ";headi
       ng$(FNy);",";month$(FNx);TAB(40);
11520 LOCATE 1,25:PRINT "Copy is ";:IF F
       Nx THEN PRINT USING m$;array(FNx-1
       ,FNy);
11530 IF FNx=0 THEN GOSUB 11110:PRINT"In
       valid";:GOSUB 11120
11540 LOCATE 24,25:PRINT USING"Entry is:
       "+m$;VAL(e$);:RETURN
11600 a=24:GOSUB 11170:PRINT"Note:";a$:a
       =25:GOSUB 11170:GOTO 11150
20000 DATA Home Accounts Main Menu
20010 DATA Sheet Options,Editing Options
       ,Printing Options,Program Terminat
       ion,*
20100 DATA Sheet Options Menu
20110 DATA Load Sheet,Save Sheet,Wipe Sh
       eet,Continue Sheet,Return to Main
       Menu,*
20200 DATA Editing Options Menu
20210 DATA Edit Credits,Edit Debits,Edit
        Headings,Default Headings
20220 DATA Return to Main Menu,*
20300 DATA Print and Display Menu
20310 DATA Print Sheet,Print Summary,Dis
       play Summary,Return to Main Menu,*
20400 DATA January,February,March,April,
       May,June,July,August
20410 DATA September,October,November,De
       cember
```

AMSTRAD PROFESSIONALS
FROM DIGITAL RESEARCH

Your Amstrad has 256k or 128k to play with. It seems a pity just to play.

The Amstrad 8256 and 6128 are extraordinary machines with random access memory that lifts them far above the home computer norm.

Now Digital Research, creators of the CP/M operating systems bundled with these business calibre Amstrads, offer serious users professional program development power and applications portability via two high level Digital Research languages: PASCAL/MT+ and CBASIC COMPILER.

Both languages come as complete packages of standard Amstrad 3" disks with full documentation.

The most complete PASCAL £49.95.

PASCAL/MT+ is full ISO standard PASCAL, extended to provide a comprehensive professional programming environment for industrial, business and educational applications.

It's faster, more versatile, more portable and easier to use in sophisticated applications demanding segmented development.

The package includes a compiler to generate relocatable object files; a linker to generate executable files from compiler outputs; a run-time support library covering transcendental functions, machine interrupts and other tasks; a disassembler and a symbolic debugger.

As well as standard ISO numerics, PASCAL/MT+ supports BCD and floating point real numbers for arithmetic precision. Special features reduce program size and enhance I/O capabilities. PASCAL/MT+ is the fully implemented PASCAL you can start with, stay with and never outgrow.

Ten times faster with CBASIC £49.95.

CBASIC Compiler is a native code compiler that allows separate modules to be written, tested and combined to create a complete program. And it combines machine code speed with BASIC ease to produce programs that execute eight to ten times faster than the same interpreted programs.

A fully integrated set of device independent graphics statements and functions permits direct output to any graphics peripheral without recompiling.

Extended precision 14-digit decimal arithmetic ensures that fractional parts of pound amounts are exact and ledgers balance to the penny.

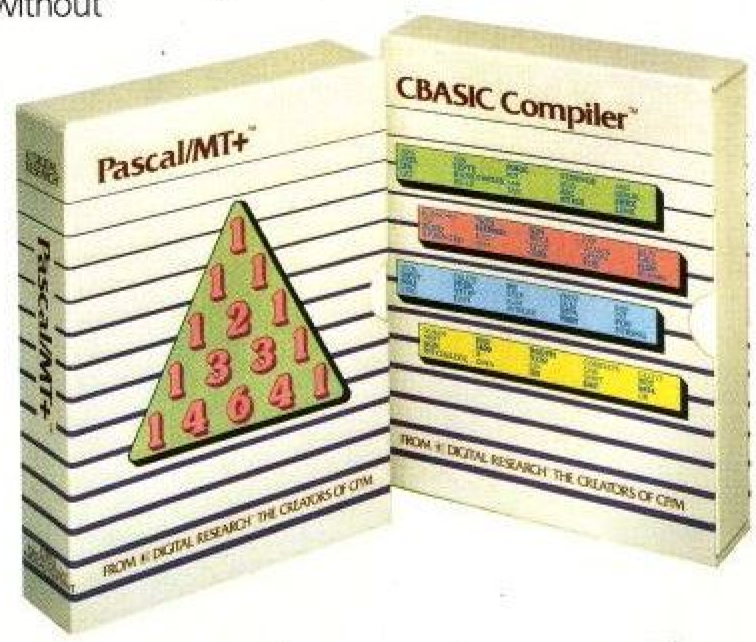
CBASIC Compiler also supports integer arithmetic, so you can use integer variables to increase execution speed.

Multiple line function capability with multiple parameters provides features found in block-structured languages. Local variables can be declared in an MLF. MLF functions may be declared as external, belonging to an entirely different program module.

Development Potential.

PASCAL/MT+ and CBASIC Compiler run on the Amstrad CPC 6128, PCW 8256, CPC 664 and CPC 464 with DD-1 disk drive. Use of graphics with CBASIC Compiler is only available on CPC 6128 and PCW 8256.

The Amstrad Professionals from Digital Research will allow you to explore and exploit your Amstrad computer's program development potential to the full.



Amstrad Professionals from Digital Research. Now Professionalism begins at home.

A full year's on-line telephone support costs just £15.00 plus VAT from BELL TECHNICAL SERVICES LTD.

Send your order and cheque or credit card number to DIGITAL RESEARCH (UK) LTD., Unit 12, Fenton Way, Southfields, Basildon, Essex SS15 6SL. Or contact your local Amstrad dealer.

DIGITAL RESEARCH
The creators of CP/M™

the credit and debit sheets to zero.

Before actually doing this, though, it prompts you to check that you are certain you really want to overwrite all the data currently entered. The credit and debit headings are not deleted.

Next year

The option called Continue the Sheet is designed to take a sheet over to the next year. It summarises each credit and debit heading (over the 12 months) and places this into the January column for each of the credit and debit headings.

There is an option to further summarise these January figures to just one total figure for credit and debit. Although these values may not fit directly into your own sheet layout, the ability to have them can be of great help.

"I name this column . . ."

Initially, each of the 20 debit and credit entries has a predefined title, such as Credit 1, but all of these can be changed. Titles such as Wages, Rent, Petrol and Shares mean more than credit or debit and a number.

The headings are altered with an option in the Editing options menu. When this is selected, all of the headings are displayed on the screen, along with a corresponding number.

To alter one of these, simply type in its number, press Enter and then type in the new heading and press Enter again.

The headings cannot be more than seven characters in length. to exit to the Editing options menu, enter zero, or just press Enter. The Default Headings option restores the headings to their default, or initial, values.

The Print and Display options are all to do with displaying the sheet in various forms. Options 1 and 2 of this sub-menu (which involve a printer) should only be selected if a printer is connected and ready.

The Print Sheet option prints the credit and debit sheets to the printer in two sheets of six columns. No control codes are output to achieve such affects as double print and so on, but these could easily be added if necessary.

The Print and Display Summary options summarise the data held in the credit and debit sheets and display various figures derived from this.

And here are the results

A summary of the yearly totals of the credit and debits entries (that is, what is the total of a given credit, say wages, over the years) is the first value displayed.

Next comes two forms of monthly totals. The first simply adds up all the credits and subtracts all the debits, yielding a total for each month.

The next mode performs the same totalling operation except that it uses the total for the last month to form the starting point for the next month's total. This method produces a running total, which is perhaps the most useful.

Throughout the program various prompts are given such as, Wipe All Data, and so on. When these questions are printed, you should answer either with Y or N. Other keys are ignored, and it doesn't matter whether you enter low or upper case, as the program takes this into account.

Answers to the questions posed do not always appear on the screen. There are two reasons for this. Firstly more program is required, and secondly most of the time the screen is cleared afterwards anyway.

Conclusion

Homespread is only a simple spreadsheet. It doesn't pretend to rival Supercalc, but it will give you a taste of how useful a spreadsheet can be. Have fun and happy adding.

ACU



AMSTRAD PROFESSIONALS
FROM DIGITAL RESEARCH

Your Amstrad can handle interactive presentation quality graphics. So here they are.

The Amstrad 8256 and 6128 don't simply have massive memory capacities that take them across the dividing line between home and business machines. They also have GSX graphics extension systems that make them potential producers of high quality (and highly exciting) graphics for business, educational, scientific, industrial or pure pleasure purposes.

Now Digital Research, creators of the CP/M operating systems that make this graphics capability possible, offer you two professional graphics software packages which exploit it to the full: DR GRAPH and DR DRAW.

Data comes alive with DR GRAPH £49.95.

DR GRAPH lets you use data entered manually or created with popular spreadsheet programs such as SuperCalc to design vividly effective and professional line, bar, scatter and stick graphs, and pie and text-only charts, quickly and effortlessly.

Simply choose options from menus and by filling in a form.

When you've completed your selections, you've completed the graph.

Choose from three different type styles (plus your machine type) for titles, legend and annotation copy. Deploy different line styles, line and bar widths and eight filled patterns to add clarity and emphasis. Add borders, colours and labels. Bar charts can be stacked, clustered, or arranged in steps or "sticks." Pie charts can include exploded "slices."

Annotation can be incorporated, modified, and moved anywhere you want. Different graph types can be combined within one chart, and as many as four different charts or graphs can be combined on a single page.

Ideas become art with DR DRAW £49.95.

DR DRAW lets you create organization charts. Flowcharts. Business logos. Technical diagrams. Maps. Or just about any shape or line drawing imaginable.

And each element can be enhanced or highlighted with a variety of colours and patterns.

Easy-to-follow menus let you select pre-programmed shapes – circles, bars, arcs, rectangles, polygons, and lines – or create your own pictures by modifying these shapes via mouse or keyboard. Add text anywhere you wish, selecting between a wide variety of type font styles.

Revise with the stroke of a key. Fill a shape with colour or patterns.

Enlarge or reduce it. Move it to a new location, or copy it.

Change type fonts, size, colour, and location with just a few simple keystrokes.

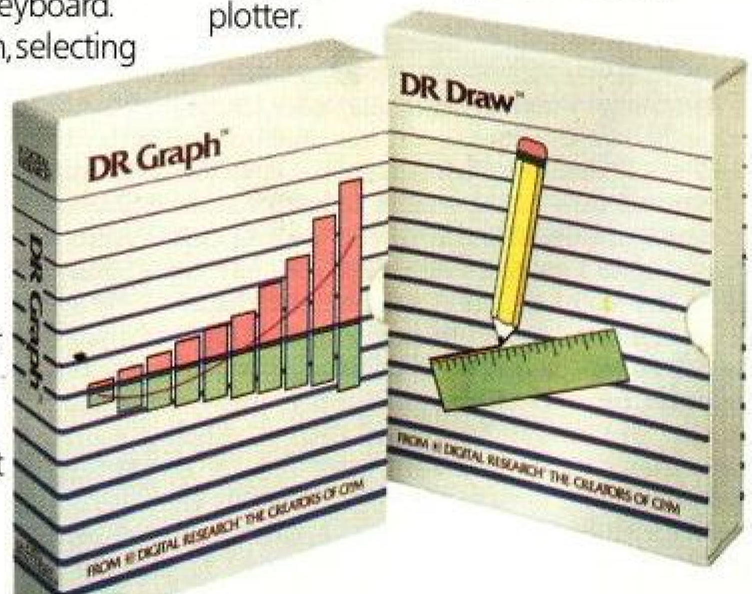
Zoom in for detailed work, then zoom back out to view the entire picture. Or zoom out to fit your picture neatly in a 8½"x 11" or 11" x 8½" page layout. On extra-large drawings, you can pan the screen back and forth over each section.

See, store, print, present!

DR GRAPH and DR DRAW let you see exactly what you've designed on screen. Then store it on disk for recall or update later. Or print or plot on paper or overhead transparency film.

Either way, you've got a totally professional presentation.

Both packages run on Amstrad CPC 6128 or PCW 8256 computers with one or two disk drives. Hard copy can be produced on any GSX-driveable printer or plotter, such as Amstrad, Epson or Shinwa printers and the HP 7470A plotter.



Amstrad Professionals from Digital Research. Now Professionalism begins at home.

A full year's on-line telephone support costs just £15.00 plus VAT from BELL TECHNICAL SERVICES LTD.

Send your order and cheque or credit card number to DIGITAL RESEARCH (UK) LTD., Unit 12, Fenton Way, Southfields, Basildon, Essex SS15 6SL. Or contact your local Amstrad dealer.

DIGITAL RESEARCH
The creators of CP/M™

VOLEX TTX 2000a



A friend of Arnold takes a close look at the device which allows you to twin your Amstrad into a Teletext receiver

"Yes, very nice dear, but what is it for?" must be one of those questions asked by generations of mothers as their sons wheel out their latest pride and joy. OK Arnold, what are you for? Well, in common with BBC TV and 'Trivial Pursuit' it could be said that personal computers were to inform and entertain.

Just as important, however, is their ability to provide the fundamental (I was trying not to say basic) computing engine for a wide range of domestic applications. In other words, its a bit like a food mixer, whose attachments turn it into a liquidiser or coffee grinder. Not usually as good or as convenient as the dedicated liquidiser or coffeee grinder, but nevertheless cheaper.

So what attachments are there for the home computer? Word processing is a typical and very popular software accessory, but there are also hardware accessories such as Prestel and Teletext. In these cases my theory is that if you already own the home computer it should be better to buy the add-on. Where computers have the edge on food mixers is that the result may also be more powerful and flexible (and even more available) than the dedicated machine. Prestel adapters made up of modems and interfaces obey these rules, but how does the Volex Teletext adapter stand up?

First impressions are important. Mine was that whatever my £150 was paying for it certainly wasn't the packaging. The adapter consists of a power supply, tuner, interface and user guide brown-sticky-taped into a motley collection of cardboard boxes probably intended for something slightly different. The plastic boxes, particularly the vacuum-formed case for the interface and the various stick-on labels, had an unmistakable home-made atmosphere, despite the construction of the printed circuit boards inside being a work of art.

Documentation

The 25 page user guide (a better choice of language in the circumstances than manual) is photocopied single-sided onto A5 paper and has to be taken from its very stiff binding before it can be used properly, at which point the lack of page numbers is a worry. There is also a single sheet containing fault-finding instructions for all the models in the range, BBC, Spectrum and Amstrad.

18 volts AC is supplied from the power supply which is moulded into a mains plug. The plug would fit into the power socket on the computer, with potentially disastrous results, although the Amstrad complete system approach makes this less likely than with computers which use an external power supply.

The tuner, which has no front panel controls or lights, not even an "on" indication, is in many ways analagous to a modem. A thin ribbon cable leads to the interface which then fits on to the computer's expansion interface. A clear diagram shows how it all fits together, including a note on how to fit a DDI-1 interface for those 464 owners. So far, none of the common problems here with the electrical arrangements for daisy chained add-ons. It's a shame though that it all flaps around so much on the back of a 464.

Explicit instruction is given on how to tune in the receiver, which has to be fed with a good quality signal from a suitable VHF antenna. The four tuning presets have knurled knobs, but you need to use a screwdriver as they do not protrude far enough out from the case to enable them to be turned by hand. Despite being able to turn off the automatic frequency control during the tuning process, there is no tuning indication.

Some sort of channel indicator would be nice and remove much of the guesswork, but the lack of "left/right" tuning lamps makes the whole chore most frustrating. An annoying little transformer inside the tuner reminds you that Snow White's Seven Dwarves do not have a monopoly on 'Whistling while they work'.

Meanwhile . . . back at the antenna. One of the reasons for buying the TTX 2000 rather than spending the extra on a teletext TV is so that you can watch a program from one channel at the same time as teletext on another. This is becoming increasingly important as each channel becomes more specialised in the information available.

The TTX 2000 has no 'UHF out' connection, so its down to the DIY superstore for an aerial splitter. Wrong again! Not enough signal left for either the TV or the teletext tuner to work properly, so its down to the DIY superstore again, this time for an aerial amplifier (muttering darkly that its probably cheaper than a new aerial anyway).

In use

The adapter has two fundamental modes of operation, as either a "terminal", much like a normal remote-control teletext TV, or as an "application" with all the functions programmed by external (bar) commands. Terminal mode is simplicity itself, with keyboard commands for familiar operations such as change channel, select page, hold and

reveal, plus extra facilities for saving pages to disc, tape or dumping to printer.

There is not enough room for tape prompts or disc error messages on the bottom line, so a little imagination (or a qualification in speed reading) is required. Screens, it says, are saved as 1,000 bytes, which takes up 2k of disc space under AmsDOS once the header has been constructed.

The display can be either Mode 1 with a restricted range of colours or can be seen in its full glory in Mode 0. In both modes it was accurate with full marks for readability; no problems here. There is no support however, for the "Update" feature very useful in spotting when a page such as the news headlines which is updated sporadically has changed and requires your renewed attention. When transmission errors occur the TTX 2000 has a tendency to clear the screen slightly more often than displaying corrupted data.

Mention is made in the user guide of sub-pages the individual frames making up a series of different screens with the same page number. The mechanism for accessing a particular sub-page was, it says, originally intended for time-controlled pages and it gives an example of using the alarm clock page on Ceefax. This worked, but even after considerable experimentation no control could be gained over "real" sub-pages, nor was any explanation given of how to attempt to do this. A warning states that only the BBC use sub-codes.

The implementation of wild cards in the page number, however, worked well. Setting the page to *** results in a continuous display of different pages, being refreshed every few seconds at the normal screen-update speed – a little like flicking through a magazine.

Application mode involves the skilful use of a number of external commands. Here the user guide falls down badly. Important commands are simply skipped over. For example, 11 words and a couple of incomplete examples in an appendix describe the |PAGE (page number) command around which most of the operation of the adapter hinges.

The operation of the adapter can be either in Direct mode, typing each command in turn, or from within a program, as follows. A 'selected' page is dumped into memory, from where it can be either displayed, stored or printed. First move HIMEM down out of the way, then choose Mode 0 or 1. The display adapts accordingly. Turn on applications mode with a |APPON. (The ROM also contains a |APPOFF command, but there are no clues as to if and when we should use it.)

Choose an area of RAM (1280 bytes) to store the page, informing the VTX 2000 with a |TRANSFER,[address] command. This command is unfortunately omitted from all but two of the worked examples, despite a warning that it should always precede a |PAGE command. Select the channel with a |CHANNEL,[n] command, remembering that although the Terminal mode calls the channels 1 to 4, (channel 4 = Channel 4 – get it?), the applications mode requires a parameter in the range 0 to 3. A byte or two of code inside the |CHANNEL command seems far too obvious a way to avoid this particular finger trouble (you just can't get ha'porths of tar these days!)

Software control

I could write a book about the |PAGE command. What a pity Volex haven't. Experiments indicate that the command initially clears the transfer buffer, and unlike a page selection in terminal mode, only grabs that page the first time it appears. What's more there is absolutely no way suggested of finding out if the page has arrived yet (the example programs simply wait for 30 seconds).

Obvious-looking programs made of |PAGE and |DISPLAY commands in small loops never worked. The |PAGE command returns control at once, and the mechanism, hard or soft interrupt or whatever, that controls the acquisition when the relevant page comes round is not described.

When the page has arrived it is sent to the screen (this time 960 bytes) with a |DISPLAY [address] command. All this means that it is very difficult to show a set of rolling pages or select a single sub-page. The best I could manage was to |PAGE, then sit in a loop staring at the point early on in the transfer buffer where the page number from the top line will appear, then if required check within the body of the buffer for the characters, for example "3/10" proclaiming the required sub-page, then |DISPLAY the page after a necessary (why?) short delay.

In this way I was able to write a program to find the Amstrad share price. Channel 4 (sorry, channel 3), Page 501, sub-page 3/10, bytes 496,7 and 8 at the time of writing. Beware, the bytes often have 128 added to the Ascii expected. Normal binary Save and Load commands can be used to swap pages from tape or disc and the transfer buffer and, with the possible use of multiple transfer buffers, can help create some really fancy effects.

One final point, |PAGE takes the page number as a text string and for this and all the other commands requiring text parameters the user guide assumes a 1.1 firmware ROM. Thus if you have a 464, for |PAGE,"501" read p$="501": |PAGE,@p$ etc, throughout the user guide. Two commands allow you to read back the page and channel settings, just in case you forgot. Now, if the |RD,PAGE only returned the page number and sub-code after the requested page had been received . . .

The adapter initialises, with no sign-on message, as ROM 5 (and 8 thro' 15 tut, tut!) grabbing just over 1,000 bytes of RAM. Tinkering with HIMEM is needed to find space for the transfer buffer and enough of the functions require memory in the absolute address range &8000 to &9000 for you to need to check that this will not clash with the memory requirements of other add-ons and RSXs or your Basic programs.

If you have a Maxam ROM Amstrad serial interface or other means to perform a ROM catalogue you will discover the command |HELP, which catalogues the TTX 2000 ROM. Typing |HELP then leads to speculation as to what the mysterious |HON, |HOFF and |HAMMING commands do, what their parameters are for, and how you use them (hamming is the error detecting and correction scheme used by Teletext).

Included are a number of commands for telesoftware and text downloading both in terminal and applications mode. Unfortunately I was unable to keep the dreaded CRC errors at bay long enough to confirm the operation of any of these. Maybe I do need the new aerial.

Conclusion

So is it all worth it? Is it a worthy component for our computerised home information and entertainment centre? I think telesoftware is over-rated, and Prestel is a more suitable medium at the moment. But as a telly and teletext addict I need this adapter. I can read in a selection of pages, on more than one channel, and in effect make my 'own' teletext service full of the information I require. I can even make completely new pages composed from titbits taken from here and there. (Can anayone advise on the copyright situation?). I can watch Terry Wogan while reading the film reviews on Channel 4. I can store all the share prices on disc, giving a more 'random' access the possibility of storing historical information on selected companies.

The price? The niggles? Well, it works, and as far as I know is the only model available for the Amstrad. In applications mode, it is not for the faint-hearted and if you only require the terminal mode then a teletext TV may be more practical and give a clearer picture, albeit from the same channel as the programme you are watching.



DK'Tronics 256k silicon disc

Owners of a Joyce usually soon learn to appreciate the speed of the memory disc when loading large documents or even when they just need another disc drive to put something on. Well, now DK'Tronics have brought out a 256k silicon disc for £99.95 that plugs into the back of your humble Arnold or 664.

A different type of case is needed if you want to use it on a 6128 – the current one is too deep and tends to bounce its butt on the ground when you type on the keyboard. As with the famous Amstrad speech synthesiser, the Basic manual supplied is just big enough to prop up the unit, but this is not everyones idea of "Software Support".

Tender ministrations of the Post Office notwithstanding, it comes in three bits – The bit with the RAM in it, the bit with a system ROM in it and a little manual-ette.

The modules are keyed to prevent you putting them on the wrong way round and should all fit very nicely into the back of your computer, with your existing disc drive interface going on the back of it all. You need to have at least one floppy disc drive fitted to make the thing work.

In practice, some add-ons (the Amstrad RS232 and the Maxam/Protext boards) do not have keying slots cut in them. That's no real problem, you just prang the locating keys out with a Swiss Army knife or (more drastic) slot the relevant edge connector with a hacksaw.

At this point I should mention that I had an early model and the ROM pack bit of the gizmo did not work. The review was continued with the ROM extracted and bunged into a ROM card in my Maxam board, which should cause no unexpected problems.

To use this device, you have to let the Arnold start up as normal with all the boxes plugged in the back and then type |SDISC to put all the patches in that make the disc work. Then, Whamo! 254k of RAM disc at your fingertips.

If you have one drive, the silicon disc now looks much like drive B, and if you have two drives, you now get a drive C. Strange as it may seem, the Amstrad disc operating system has no provision in it to tell what disc you are on anyway.

The commands A, B, DRIVE, DIR, ERA, REN and USER are put into the memory as RSXs and the manual claims that just about all the Basic file handling commands will now work as expected on the silicon disc.

In practice, I found that files that were created and did not contain anything, such as the "Dummy" file traditionally created to stop the buffers creeping down, still existed on the silicon disc but not on floppies. Also, most of my utopia facilities refused to work, but Arnor do some funny things in Utopia.

The loss of some of the Utopia facilities (notably attempts to access drive C) was not much to worry about. However, the RAM disc ROM had a perfectly good routine to copy the contents of an ordinary floppy to RAM and vice versa. The only problem with that was that it wiped out any Basic program that happened to be in user memory at the time.

At least it warned you that this might happen. One should remember that the RAM disc has a capacity of 254k and a data format (that's the biggest one) floppy only has 178k on it. Putting quarts into pint discs doesn't go. Like DISCCOPY and DISCKIT, the copy routine wipes out all the old files on the floppy disc and replaces them with the new data.

I thought that I might try out the drive with Tasword D. But alas, Tasword does not recognise the RAM disc at all, and won't even edit properly on drive A any more. Both Maxam and protext got on fine with the RAM disc, but their CAT command still tried to look at disc A as it was displaying the directory of disc B.

The other main clever bit with this device is the way it converts your common or garden CP/M 2.2 into a CP/M with RAM disc. This involves moving your CP/M a bit and running a special file which contains all the patches (all in the manual, folks). The net upshot of all this is you have bags of RAM disc about, but even less main memory than was originally on the already under-TPA'd Arnold. Experiments with Mallard Basic revealed an 8k workspace – The Hitch-Hikers Guide to the Galaxy worked very nicely thank you, but Colossal Adventure expired through lack of TPA.

One of the few serious programs I tested was Micropen. This really benefitted from the RAM disc and spat out data as fast as its little screen could handle it.

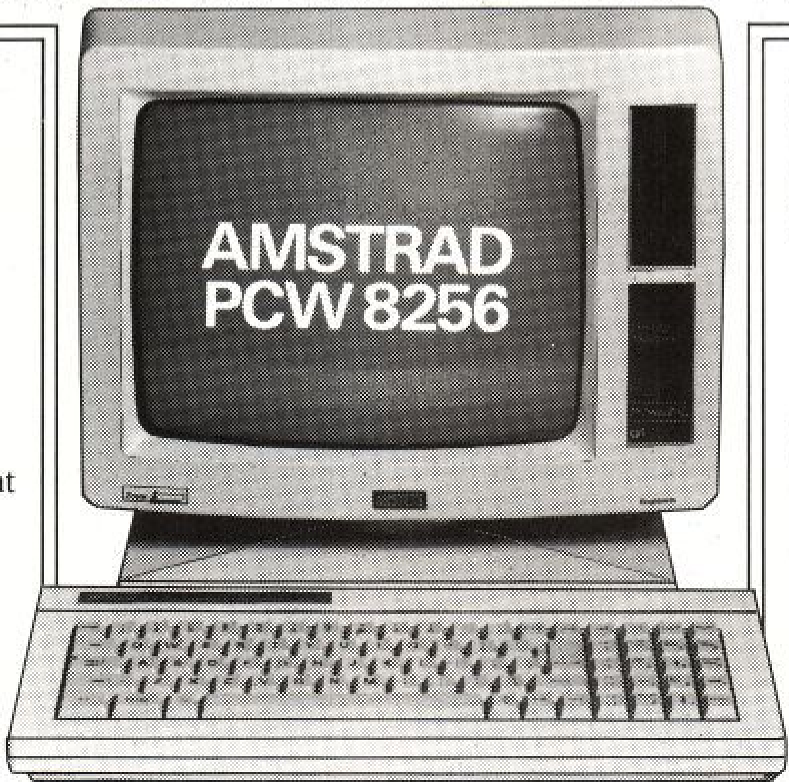
Because of the boot sector not being on a RAM disc, you can't get away with taking the disc out of drive A. When you leave a program, it tries to re-boot. No disc, no joy. I could also find no way of making the C drive write protected.

This add-on gives you a big storage (and ego) boost with three drives on your system if you're lucky. It does have some practical purposes, but it gives the system a few disadvantages (less main memory) on the way.

The manual is adequate, but does miss out on a few important points, like telling you that the following command will delete any Basic programs you happen to be working on.

ACU

BRITAIN'S BEST VALUE COMPUTER HARDWARE



So far so good. If you've bought an Amstrad PCW 8256 you've got the best value hardware on the market. But what now? Keep on saving with the best selling, Sage 'Popular' range of business software.

Take your pick from the biggest and best range of professional software for the AMSTRAD. Accounts, Payroll, Invoicing, Data Base Management and Communications programs, all simple to use but highly effective and yours from as little as £69.99 incl. VAT. For the cost-conscious small business, there's no better bet than Sage. What's more, you don't need to be a computer buff to put our programs to work. We give you 90 days direct after sales support absolutely free, and for a modest annual payment we'll provide ongoing support, including free program updates.(Try asking some suppliers of higher priced software how much support they offer!)

What Amstrad did for hardware prices, Sage, one of Britain's top software companies, have done for software prices. Talk to your local dealer today, or send for more information.

DESERVES BRITAIN'S BEST VALUE SOFTWARE



- **ACCOUNTS** The original SAGE accounting system to automate your bookkeeping. **£99.99** incl. VAT
- **INVOICING** Automatic invoice production linked to a stock recording system **£69.99** incl. VAT
- **ACCOUNTS PLUS** SAGE accounts combined with Invoicing and linked directly to your ledgers. **£149.99** incl. VAT
- **PAYROLL** An effective, easy-to-use system to automate wage calculations, payslip printing etc **£69.99** incl. VAT
- **COMBO PACK** The SAGE Accounts and Payroll programs in a money-saving package **£149.99** incl. VAT
- **SUPER COMBO** Accounts, Invoicing and Payroll at a saving of £39.98. **£199.99** incl. VAT
- **SAGE DATABASE** The electronic filing system to organise your records and produce reports and mail shots **£69.99** incl. VAT
- **CHIT·CHAT, E-MAIL** A special version of this top-selling program to connect to electronic mail systems like Telecom Gold, One-to-One, etc. Includes free One-to-One mail box worth £50. **£69.99** incl. VAT
- **CHIT·CHAT, VIEWDATA** This version of Chit·Chat gives you access to Prestel and other information systems **£69.99** incl. VAT
- **CHIT·CHAT COMBO** Save £39.99 with this combination of our E-Mail and Viewdata programs. **£99.99** incl. VAT

FOR MORE INFORMATION

Fill in the details below and post to:
Sagesoft plc, NEI House, Regent Centre, Gosforth, Newcastle upon Tyne NE3 3DS.

NAME ____________

COMPANY ____________

POSITION ____________

ADDRESS ____________

____

____

POST CODE ____________

TEL. NO ____________

☎ ORDER BY PHONE

SAGE

Holders of Access and Barclaycard can order by 'phoning Tyneside (091) 284 7077. Please allow 28 days for delivery.

BETTER SAGE THAN SORRY

ACU 5/86

Now on 2 floors!

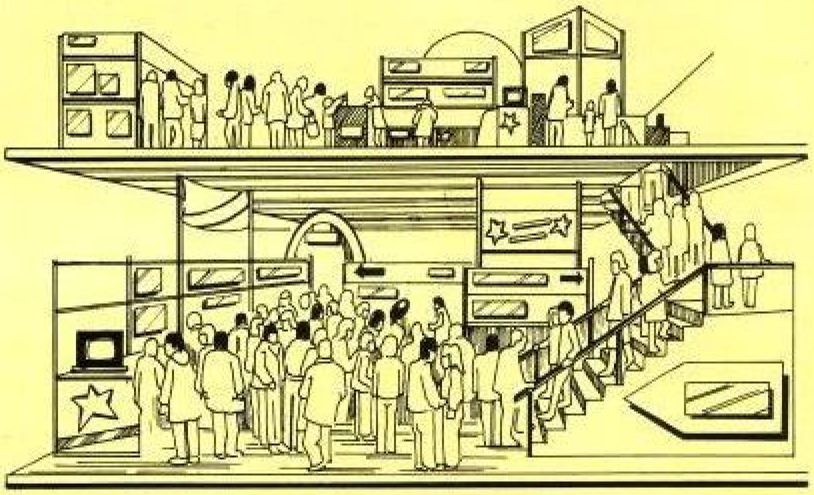
The 4th official

AMSTRAD COMPUTER SHOW

Organised by Database Exhibitions

The next show is doubled in size – and that means . . .

- ★ ***TWICE** as much to see!*
- ★ ***TWICE** as much to try!*
- ★ ***TWICE** as much to buy!*



The summer Amstrad Computer Show is the biggest ever held, with many more exhibitors presenting all their latest products, including a large number on display for the first time.

HOME USERS! See the versatile Amstrad CPC range stretched to its very limit with the latest megagames, hardware add-ons, speech chips, graphics packages, languages, simulators, utilities.

BUSINESS USERS! See the new word processors, spreadsheets, databases, accounting and other financial programs plus communications packages that enable the CPC and PCW ranges to talk to the outside world.

EDUCATIONAL USERS! Find out why Amstrad computers are entering educational establishments in ever-increasing numbers, helped by their low cost, adaptability and networking facilities.

. . . and it lasts for THREE days instead of two!

Champagne Suite and Exhibition Centre,
NOVOTEL, HAMMERSMITH, LONDON W6

Friday, June 13, 10am-6pm
Saturday, June 14, 10am-6pm
Sunday, June 15, 10am-4pm

Avoid the queues!

Get your ticket in advance and. . .

SAVE £1 A HEAD!

Advance ticket order

Please supply:

☐ Adult tickets at £2 (save £1) .... £ ______
☐ Under-16s tickets at £1 (save £1) ...... £ ______
Total £ ______

☐ Cheque enclosed made payable to Database Publications Ltd.

☐ Please debit my credit card account:

Access ____ ____ ____ ____

Visa ____ ____ ____ ____

Admission at door: £3 (adults), £2 (under 16s)

AMSTRAD COMPUTER SHOW

Champagne Suite & Exhibition Centre, Novotel, Hammersmith, W6

June 13-15, 1986

Post to: *Amstrad Show Tickets, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.*

Name ....

Address ....

....

.... Signed ....

PHONE ORDERS: Ring Show Hotline: 061-429 7931
PRESTEL ORDERS: KEY *89, THEN 614568383
MICROLINK ORDERS: MAILBOX 72:MAG001
Please quote credit card number and full address + Ref. ACU 5

Arnor LTD

PROTEXT

FOR AMSTRAD 464/664, 6128

THE ULTIMATE AMSTRAD WORD PROCESSOR!!

PROTEXT is without doubt the most sophisticated word processor you will find on any home micro. It is of comparable standard to business packages costing over £200 but has been developed for the AMSTRAD 464/664 and 6128 machines and is 100% machine-code. We know that PROTEXT is the fastest program of its type currently available (eg global search and replace on a three page file in under a second!). Bearing in mind the range of features included and their ease of use, this package is rightly acclaimed as the No. 1 word processor for Amstrad owners. Compare these features and benchmarks with any other similar products.

BENCHTESTS

A standard file of 775 words (4,785 characters) was used to carry out the following benchtests (all timings are in seconds):

	PROTEXT	TASWORD/AMSWORD
1 LOAD text file	4.7	10.2
2 SAVE text file	4.9	18.9
3 Re-FORMAT paragraph (85 words)	0.4	15.3
4 Re-FORMAT entire text	2.5	Not Possible
5 Move directly to start of text	under 0.1	2.2
6 Move directly to end of text	0.2	2.2
7 REPLACE 'the' with 'THE' (45 occurances)	1.7	34.1
8 SCAN entire text	2.2	7.2
9 MERGE file to centre of text	4.0	Not Possible
10 MERGE file to end of text	3.8	12.4
11 MOVE 85-word paragraph	under 0.1	6.8
12 PROGRAM LOAD TIME DISC ROM	12.9 Instant	14.6 Not Available

PROTEXT FEATURE SUMMARY

File commands – Super fast Load, Merge and Save, Cat, Print (to printer/screen/file).
Cursor Movement – By character/word/line/paragraph/screen, to start or end of line, to start or end of text, to line number, to place marker, to margin.
Inserting and deleting – Insert/overwrite mode, insert character or line, delete character forwards or backwards, delete word.
FIND and REPLACE – Wildcards, all or part of text, case specific, whole word or part of word, find control codes.
Block commands – Move/copy/delete/save/print/format.
Markers – 2 block markers and 10 place markers may be set anywhere.
Formatting – Word wrap, right justify, variable left and right margins.
Ruler lines – Unlimited number of ruler lines to define margins and tabs.
Print options – Headers/footers, page numbers, variable line spacing, variable page length and margin sizes, conditional page throws, odd and even page features, continuous or single sheets, multiple copies.
Printer features – Including emphasised, condensed, double-strike, elite, italics, enlarged, pica, NLQ, subscript, superscript, underline. Built in Epson printer driver. Ability to easily define your own printer driver and save to disc.
Help features – Optional on screen command summaries.
Built in character sets – Danish/French/German/Italian/Spanish/Swedish.
Other features – Non break space, display tabs, returns and hard spaces, soft hyphens, word count, case conversion, copy ruler. 40 page easy to read manual with full index and glossary of terms.

"I AM STUNNED AT PROTEXT — IT KNOCKS POCKET WORDSTAR INTO A COCKED HAT" — AMTIX ISSUE 1 **"DON'T MISS IT. IT IS SUPERB"** — POPULAR COMPUTING WEEKLY
"MILES AHEAD OF THE AMSWORD TYPE PROGRAMS" — AMSTRAD USER

NOW TWO POWERFUL NEW ADDITIONS TO YOUR WORD PROCESSING SYSTEM:-

PROSPELL

* Checks your Spelling *
* Proof reads your documents *
* Solves your word puzzles *

– How to use PROSPELL –

The Spelling Checker can be called directly from within PROTEXT to check the current file in memory or any file on disc. Alternatively, PROSPELL will check any ASCII file produced by other Amstrad word processors, including Wordstar type files.

– Features available –

Add words to the dictionary/Correct word/ignore word/Look up correct spelling/View word in context/Delete words/List words/Initialise new dictionary . . . PLUS . . .

– Word Puzzle Features –

The 30,000 word Dictionary can be used in a number of useful ways.

FIND WORD – You can enter a word pattern using ? for an unknown letter and * for a group of unknown letters. PROSPELL will list all words in the dictionary which match this pattern.

ANAGRAMS – PROSPELL will even list all anagrams of any word pattern you type in.

Together these features will prove invaluable to crossword solvers and compilers.

– THE POWER OF PROSPELL –

Some spelling checkers work as slowly as 150 words per minute.
PROSPELL works at up to 2000 w.p.m.

Some spelling checkers limit your dictionary size. PROSPELL will work with an unlimited number of dictionaries, each of which can hold around 45,000 words.

PRICES – ROM £34.95 DISC £24.95

Prices include dictionary on disc.
PROSPELL requires at least one disc drive.

PROMERGE+

This major addition to the PROTEXT word processor combines a fully flexible mail merge program allowing PROTEXT to produce individualised documents in one single print run.

(a) COMPREHENSIVE MAIL MERGE

Read data from file or keyboard.
Merged fields of varying lengths are automatically reformatted.
File merge – insert file while printing.
Conditional printing – select from input data (eg you could print letters to all customers whose name is not Smith).
PROMERGE (Disc) £24.95

(b) PROTEXT EXHANCEMENTS (ROM version only)

Background printing – edit one file while you print another.
Print file direct from disc or memory.
Two file editing – –switch between two files in memory.
Cut and paste – any block of text can be moved to any position - allows multiple column layout.
Auto configuration – you can set up a disc to configure PROTEXT to your preferred options with a single keystroke.
Typewriter mode – for envelopes etc.
Tasword users – automatically converts your old text files.
Calculator – a simple on-screen calculator for those invoice totals, etc.

*** 6128 OWNERS ***

These features make full and sensible use of your extra 64K memory but also function with smaller files on the 464 and 644 machines
Also uses D K 'Tronics 64K RAM expansions.
PROMERGE + (ROM) £34.95

MAXAM ASSEMBLER

Now recognised as the industry standard assembler/monitor/editor. Used by all the leading software houses, computing magazines and widely used throughout industry.

"This piece of software should be held up as an example of what can be done by programmers who care. It is brilliant."
ELECTRONICS & COMPUTING

"MAXAM is a superb ROM which is recommended for all serious machine code programmers. It contains a powerful assembler and an excellent editor which is a joy to use."
COMPUTING WITH THE AMSTRAD

"ARNOR are to be congratulated on a superb job . . . definitely the best."
HOME COMPUTING WEEKLY

"A product no serious Amstrad user can afford to be without."
YOUR COMPUTER

Why make machine-code difficult?
Why use anything less than MAXAM?

PROTEXT and **MAXAM** are available on cassette, disc, rom and plug-in cartridge.

CASSETTE AND DISC
The inexpensive introduction to the Arnor professional software.
Cassette £19.95 Disc £26.95

ROM
For those people who already own a rom expansion box. Just plug in a rom and off you go. Arnor roms are compatible with all other rom boxes.
EPROM £39.95

PLUG IN CARTRIDGE (AD2)
Complete Plug-in-and-go ROM cartridge containing either PROTEXT or MAXAM. NO ROM BOXES REQUIRED! In addition, the cartridge has a thorough connector for further peripherals and an extra socket for expanding the system with our own 4 way rom board. The AD2 cartridge plugs directly into the 464, 664 or 6128, fitting snugly into the expansion port. Fitting a PROTEXT cartridge means that as soon as you switch your Amstrad computer on, PROTEXT is instantly ready and waiting for you to use.

Consider the price of our cartridge system. Just £10 onto the price of the rom software and no extra hardware required. Why pay twice as much to get started?

AD2 cartridge (PROTEXT or MAXAM) with no extra hardware required **£49.95**
4 WAY ROM CARD (plugs into cartridge) **£15.95**

REMEMBER . . . ROM and cartridge software gives you a massive 40K text space!!

GOING LOCO

This month Alex Martin looks at arrays

What are arrays? And how do they fit into the Grand Scheme?

Let us suppose that you wish to write a program. This program will add up all the items you have bought this month and then the total, held in the variable called Monthstotal, is to be printed out.

Now let us suppose that you wish to expand the program to work out the same thing for a number of months, say three, and then calculate the sum of all three.

Each total needs a unique name. The first total can be called Monthstotal1, the second Monthstotal2 and the third Monthstotal3.

It's perfectly all right to produce a program like this but by the time you have reached Monthstotal24, to handle two years, things are getting a little complicated.

There is an easy way of coping with such difficulties and this is to use array variables.

What is the difference between a variable and an array variable? Each variable contains one piece of information that is associated with a unique variable name.

An array variable is similar but it can have many pieces of information associated with it. It is possible to make an array variable out of any type of variable whether it's numeric or string.

Nothing to do with printers

What does an array variable look like? To get at a particular element of the array a number is used. This number is put into brackets after the variable name.

A variable name followed by a number in brackets is spotted by the computer as a completely separate entity to a variable with the same name but no number.

So Monthstotal and Monthstotal(1) are two different variables. The number in the brackets is called a subscript. This has nothing to do with the subscript characters some printers produce, so don't get confused. The subscript is the



number by which the computer finds a particular piece of information in a stack of information all held under the same name.

If you went into a library and said: "I want the third book from the shelf on sailing", the computer equivalent would be Sailing(3).

The best book on sailing

The subscript number can be a variable. To take our previous analogy a stage further, "I want the best book from the shelf on sailing" becomes Sailing(Best), where Best is the variable.

With some computer languages such as Pascal it is possible to have subscripts using negative numbers. This is very useful for some applications but isn't something that is usually supported by Basic.

```
10 'listing 1
20 FOR n=1 TO 7
30 READ day$(n)
40 NEXT
50 INPUT"type in number of day to print"
   ;d
60 PRINT"Day is ";day$(d)
70 GOTO 50
80 DATA Monday,Tuesday,Wednesday,Thursda
   y,Friday,Saturday,Sunday
```

Listing 1

Take a look at Listing 1 and preferably type it in. The program simply shows how information is assigned to an array of string variables and then can be called back using the subscript number.

If you type in a number greater than 10, the program will stop with a "Subscript out of Range" message.

This means that the computer doesn't have any useful information associated with numbers greater than 10 and so can't pass it on to the program. The computer cannot provide unlimited space for arrays and imposes limits on their size.

How much space?

To allocate space for an array, the DIM command is used. DIM is called DIM partly because this is short for dimension and you "dimension an array", and partly because once DIM has been told how big an array is, it cannot see it as being any other size.

The only way to alter the size of an array once it has been dimensioned is to delete it using the ERASE command and start again.

To actually dimension an array you type DIM followed by the largest variable you want to use. For example, Months(12).

In Listing 1, there is no DIM command. So how does the computer know how many elements are needed for the array variable Day$?

The answer is, it doesn't. So it just guesses that up to 10 might be used. All arrays have to be dimensioned either by the programmer or, if the programmer has dozed off, by the computer.

In Listing 1 the dimensioning is done, implicitly, by the computer. Had the listing got a DIM command in it, it would be dimensioned, explicitly, by the programmer.

The range of elements starts at zero at the bottom end and goes to the maximum that the array has been dimensioned to at the top.

The only limit on the maximum number of elements is memory space. Just to see if you are paying attention how many elements does Day$, in Listing 1, have?

```
5 'Listing 2
10 DEFINT a-z
20 whistle=-1
30 DIM n(19),ipos(19)
40 FOR i=0 TO 19
50   n(i)=INT(RND*50):ipos(i)=n(i)
60 NEXT
70 WHILE whistle
80   whistle=0
90   FOR i=1 TO 19
100      IF n(i)<n(i-1) THEN n=n(i):n(i)=
   n(i-1):n(i-1)=n:whistle=-1
110    NEXT i
120 WEND
130 FOR i=0 TO 19
140    PRINT USING" ## ## ##";i+1,ipos(i)
   ,n(i)
150 NEXT
```

Listing 2

Listing 2 is a bubble sort program. This will show you how arrays can be used to sort a number of items into a particular order.

The program generates 20 random numbers between 0 and 50. It then goes on to sort them into order, with the smallest number placed into the first element of the array.

It does this by working through the list and swapping a number with the number above it, in the list, if it is has a greater value.

Only when the list has stopped "bubbling" does the flag called Whistle indicate to the program that it can print out the new list.

A faster bubble sort can be written, where the list scans for the highest value and then puts it into the highest position and so on, down the list.

A useful programming exercise would be to write a bubble sort program to sort

```
10 'Listing 3
20 DEFINT a-z
30 DIM char(7,7),store(7,7)
40 FOR x=0 TO 7
50 FOR y=0 TO 7
60 READ char(x,y)
70 NEXT y,x
80 INPUT"Type in number of example";exam
   ple
90 :
100 :
110 'data for character 'a'
120 DATA 144,144,144,144,144,144,144,144
130 DATA 144,144,144,144,144,144,144,144
140 DATA 144,143,143,143,143,144,144,144
150 DATA 144,144,144,144,143,143,144,144
160 DATA 144,143,143,143,143,143,144,144
170 DATA 143,143,144,144,143,143,144,144
180 DATA 144,143,143,143,144,143,143,144
190 DATA 144,144,144,144,144,144,144,144
200 ON example GOSUB 350,480,560,640,720
210 GOSUB 250
220 GOTO 80
230 :
240 :
250 'display character
260 FOR x=0 TO 7
270 FOR y=0 TO 7
280 PRINT CHR$(char(x,y));
290 NEXT y
300 PRINT
310 NEXT x
320 RETURN
330 :
340 :
350 'rotate clockwise
360 FOR x=0 TO 7
370 FOR y=0 TO 7
380 store(y,-x+7)=char(x,y)
390 NEXT y,x
400 'transfer store to char
410 FOR x=0 TO 7
420 FOR y=0 TO 7
430 char(x,y)=store(x,y)
440 NEXT y,x
450 RETURN
460 :
470 :
480 'rotate anticlockwise
490 FOR x=0 TO 7
500 FOR y=0 TO 7
510 store(-y+7,x)=char(x,y)
520 NEXT y,x
530 GOTO 400
540 :
550 :
560 'reflect
570 FOR x=0 TO 7
580 FOR y=0 TO 7
590 store(x,-y+7)=char(x,y)
600 NEXT y,x
610 GOTO 400
620 :
630 :
640 'invert
650 FOR x=0 TO 7
660 FOR y=0 TO 7
670 IF char(x,y)=144 THEN char(x,y)=143
    ELSE char(x,y)=144
680 NEXT y,x
690 RETURN
700 :
710 :
720 'scroll
730 FOR x=0 TO 7
740 FOR y=0 TO 7
750 store((x+1) MOD 8,y)=char(x,y)
760 NEXT y,x
770 GOTO 400
```

Listing 3

strings. How about it? What do you mean you're busy mowing the lawn!

Into another dimension

By now you should have got the hang of arrays and we can go on to some more complex ideas.

You are not limited to having just one subscript number in an array. By putting two numbers in, it is possible to set up an array in two dimensions. The purpose of this is for representing tables or grids or matrices.

Once again the computer will dimension an array for you, if you keep the values of the subscripts under 10. Therefore Daysweek(7,4) does not need to be dimensioned but Weeksmonth(4,12) does.

Out of character

In Listing 3 a two dimensional integer array is being used to hold the information for a screen character. The numbers put into the array are 144 for a space (represented by a dot) and 143 for a block.

The data is scanned through and used to generate the screen display. The information in the array can be manipulated to produce different effects.

If you have typed in the listing you can try out the following examples. Run the program. It stops and asks you to type in the number of the example. Press Return. This should display an "a" character and then prompt you for a number.

If you type in "1" the program will rotate the character by 90 degrees in a clockwise direction. This is achieved by copying the contents of the array into another array but taking a horizontal line and putting it into a vertical line.

Type "2" and it will rotate the character in an anticlockwise direction.

Type "3" when the prompt appears, and the character will be reflected. The program takes a vertical line of data from one array and transfers it to a vertical line on the opposite side of the other array.

A very simple thing that can be done to the character is to invert it. That means changing all the blocks to spaces and spaces to blocks. Type "4" to do this.

The final thing that can be done with this program is to scroll the character. Type "5". This moves the character down a line and brings the discarded line on to the top.

Listing 3 introduces a new feature that hasn't been pointed out before – it is possible to put more than one array variable into a DIM statement.

Put on your 3D glasses

Let's take a trip into the third dimension. You have seen how an array supports two subscripts, but it is also possible to have an array with three subscripts or more.

Using a three dimensional array it is possible to set up and manipulate a three dimensional character in much the same way as the two dimensional one.

If you wished to manipulate more than one character the array could have an extra subscript to indicate which character was required. For example Char-(charnumber,x,y,z).

Listing 4 generates and displays a three dimensional character "a". None of the previous features are included – if you want them, you program them. A count of how long it takes to display the character is included.

Listing 5 is identical in what it does. However the coordinates of the characters to print are stored away in two arrays. This means they can be trotted out and used very quickly. You should notice a considerable improvement in the time compared with Listing 4.

Listing 5 uses arrays with three subscripts to store the coordinates. This makes the retrieval of the information slightly slower. If arrays are being used to store the information it is better to use single subscript arrays as these offer the maximum speed.

Well, that's all for this month. Hope you enjoy typing in the listings. Now you know all about arrays nothing can stop you. The world is your fish finger (I never did like oysters).

With the technology to store the names of all the countries, you can settle down to that world domination program you've been meaning to write. See you next month with the latest thrilling instalment of Goin' Loco.

```
10 'Listing 4
20 ORIGIN 100,100
30 CLS
40 DEFINT a-z
50 DIM char(7,7,7)
60 FOR z=0 TO 7
70 FOR x=7 TO 0 STEP -1
80 FOR y=0 TO 7
90 READ char(y,x,z)
100 NEXT y,x
110 RESTORE 150
120 NEXT z
130 :
140 :
150 'data for character 'a'
160 DATA 144,144,144,144,144,144,144,144
170 DATA 144,144,144,144,144,144,144,144
180 DATA 144,143,143,143,143,144,144,144
190 DATA 144,144,144,144,143,143,144,144
200 DATA 144,143,143,143,143,143,144,144
210 DATA 143,143,144,144,143,143,144,144
220 DATA 144,143,143,143,144,143,143,144
230 DATA 144,144,144,144,144,144,144,144
240 GOSUB 280
250 STOP
260 :
270 :
280 'display character
290 t!=TIME
300 TAG
310 FOR z=7 TO 0 STEP -1
320 FOR x=0 TO 7
330 FOR y=0 TO 7
340 MOVE (x+z/5)*20,(y+z/5)*20:IF char(x
   ,y,z)=143 THEN PRINT CHR$(233);
350 NEXT y,x
360 PLOT 1000,1000,(z MOD 3)+1
370 NEXT z
380 TAGOFF
390 PRINT TIME-t!
400 RETURN
```

Listing 4

```
10 'Listing 5
20 ORIGIN 100,100
30 CLS
40 DEFINT a-z
50 DIM char(7,7,7),xcoord(7,7,7),ycoord(
   7,7,7)
60 FOR z=0 TO 7
70 FOR x=7 TO 0 STEP -1
80 FOR y=0 TO 7
90 READ char(y,x,z)
100 NEXT y,x
110 RESTORE 150
120 NEXT z
130 :
140 :
150 'data for character 'a'
160 DATA 144,144,144,144,144,144,144,144
170 DATA 144,144,144,144,144,144,144,144
180 DATA 144,143,143,143,143,144,144,144
190 DATA 144,144,144,144,143,143,144,144
200 DATA 144,143,143,143,143,143,144,144
210 DATA 143,143,144,144,143,143,144,144
220 DATA 144,143,143,143,144,143,143,144
230 DATA 144,144,144,144,144,144,144,144
240 GOSUB 440
250 GOSUB 290
260 STOP
270 :
280 :
290 'display character
300 t!=TIME
310 TAG
320 FOR z=7 TO 0 STEP -1
330 FOR x=0 TO 7
340 FOR y=0 TO 7
350 MOVE xcoord(x,y,z),ycoord(x,y,z):IF
    char(x,y,z)=143 THEN PRINT CHR$(233)
    ;
360 NEXT y,x
370 PLOT 1000,1000,(z MOD 3)+1
380 NEXT z
390 TAGOFF
400 PRINT TIME-t!
410 RETURN
420 :
430 :
440 'store coords
450 FOR z=7 TO 0 STEP -1
460 FOR x=0 TO 7
470 FOR y=0 TO 7
480 xcoord(x,y,z)=(x+z/5)*20:ycoord(x,y,
    z)=(y+z/5)*20
490 NEXT y,x,z
500 RETURN
```

Listing 5

Amstrad Business Computing

The supplement for Amstrad Business Computer Users

Free
May 1986
Volume One
Number Six

The PCW 8512 Full Review

LocoScript Hints: Printing Explained in Detail

The CPS 8256 Reviewed



Software the professionals use!

Now available for the Amstrad CPC-6128, PCW-8256 and CPC-464 (with CP/M)

Caxton

Call our order hot-line now! 01-379 6502



Imagine you have to prepare a report, plan a holiday, launch a new product, arrange a wedding or simply sort out your ideas on a new activity.

BrainStorm is a three dimensional scratch-pad designed to be the quickest and most efficient way of organising your thoughts on any subject. It allows you to think, write, edit and structure all at the same time.

First dump your random thoughts into BrainStorm. Identify major points; jot in other thoughts as they come to you; maybe develop an idea that particularly appeals.

Unobtrusively BrainStorm starts to develop a model of what's on your mind. You don't have

Introductory Amstrad Offer Usually £224.25 Now **£49.99** inc VAT

to screw up balls of paper, use an eraser or write things out again. You can cut, paste and amend your ideas at will. Add in afterthoughts, change emphasis and resequence...all at the touch of a few keys.

BrainStorm is the equal to a word processor on words, or a spreadsheet on numbers. With it you will develop the ideas in your mind...all in a fraction of the time it takes with a scratchpad and pencil.

If you think you must BrainStorm.



SmartKey has the power to dramatically improve the way your personal computer works for you, by customising and automating your keyboard and software.

It enables you to assign any long, repetitive, or difficult-to-remember set of keystrokes to any single key on your keyboard. Press this key once and SmartKey, the electronic assistant, will do the work for you. It can be used with, and is invisible to, your other programs.

With word processors you can type standard paragraphs,

Introductory Amstrad Offer Usually £113.85 Now **£49.99** inc VAT

reformat text, find files and change margins instantly. With spreadsheets you can define keys to display windows, recalculate models, save files and print automatically. And with databases you can find records, enter data and produce reports with just one keystroke.

With these and other software products the possibilities are endless! SmartKey will increase your productivity, improve your accuracy and reduce your frustration. Your Amstrad computer will be a lot easier and a lot more fun to use.



Are you frustrated by the keyboard barrier? Would 'error prone and slow' fairly describe your keyboard skills?

Touch 'N' Go will change all this. It is a carefully designed keyboard skills course developed over the last 20 years. Having been implemented on today's business micro-computers it has

Introductory Amstrad Offer Usually £63.25 Now **£24.99** inc VAT

achieved success as the UK's most popular typing tutor. And now it's available for the Amstrad range of disk-based computers.

The course develops your skill on the QWERTY keyboard and numeric keypad. With a little concentrated effort you can achieve mastery in just 24 hours.

It is actually so much fun to use that it becomes addictive. So don't start using Touch 'N' Go when you have something more important you should be getting on with!

Touch 'N' Go gives you the opportunity to banish keyboard frustration forever and increase productivity with the software products you use.



Cardbox is the most popular, the most flexible, the fastest and in fact THE BEST simple electronic card-indexing system on the market.

With Cardbox you can maintain

Introductory Amstrad Offer Usually £143.75 Now **£99.99** inc VAT

instantly accessible records of customers, suppliers, staff, books, journal extracts, club memberships, widgets and just about anything you can think of. You design the card layouts yourself and index the information as you put it in. You can have any number of keywords in a file, display or print cards in any format and exchange information with other programs.

You can have up to 65,000 cards in any one file (depending on disk capacity). Each card can have up to 1404 characters on it. There can be up to 26 fields on each card. The largest field you can have is 1404 characters (the size of the card). And there is absolutely NO LIMIT to the number of indexed words you can have on a card or in a file.

Offers last for a limited period only.

Please add £3 P&P per product.

Caxton

Caxton Software Ltd., Lading House, 10-14 Bedford St., London WC2E 9HE.

Amstrad Business Computing

We've just about run out of adjectives to describe the revolutionary way in which Amstrad has swept from being a supplier of mass audio equipment that wore the label "hi-fi" with a good deal of unease, to being a – if not the – major force in serious personal computing.

The PCW 8512 embodies all that Amstrad has demonstrated so far – an ability to milk a successful idea and provide a boost just when the press were taking about other manufacturers trying to hop on the bandwagon, and the commercial bluntness that reflects the battle-hardened discovery that the public has a short memory.

The PCW 8512 has surprised very few, but certainly hasn't endeared Amstrad to owners of the PCW 8256 who have just shelled out the thick end of £180 for the second disc drive. And as for those who paid their money weeks ago and are still waiting for the second drive to be fitted . . .

Getting it together

The flood of PCW 8256 software continues. The world's most popular 8-bit spreadsheet, Multiplan, has slid out quietly, marking a much more significant event than many might think. The sleeping giant of Microsoft has awoken to the reality of the PCW 8256 marketplace and is setting up its stall at long last.

The far-from-asleep David Goldman at Sage continues to release new products and perm the old ones. Camsoft has completed its facelift for the PCW 8256 specific Camsoft 2 range. Chris Honey has finally given birth to the PCW 8256 communications package to end them all.

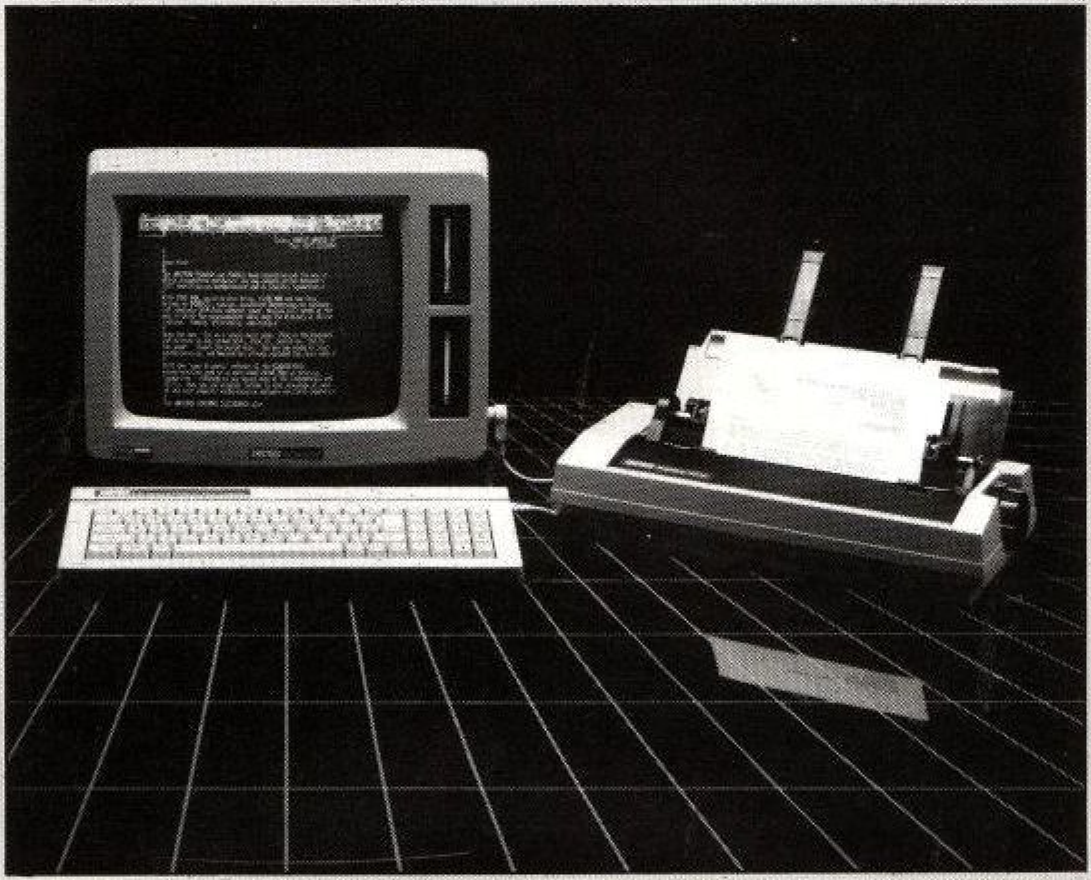
This phase of the market highlights an important feature – the PCW 8256 is not just any old CP/M computer, but one with many hardware features that allow the creative software author to ply his trade with loving care. The difference between a product that is merely "ported across" and one that is installed with a touch of finesse is beginning to emerge.

Just as the software is beginning to sparkle, so some dealers have acquired the necessary finesse to do a bit more than shove the box at the customer. In other words, the act has come together, and the PCW series can now truly be called an industry in its own right.

William Poel

ABC

PCW 8512



Time to re-Joyce

Six months after the launch of the 8256 we are witnessing one of the greatest success stories of the computer industry. The machine has found a very substantial following, not only as a word processor, but as a CP/M computer in its own right.

The PCW 8256 has opened up the low cost application market as successfully as Uncle Clive's Spectrum revealed the demand for a games machine. The Joyce, as the 8256 has become known, has become the root of a whole new industry feeding small businessmen, doctors, accountants, farmers and rock climbers with package after package of CP/M software that might otherwise have been assigned to the retirement list. In terms of value for money the Joyce is tops, or it was, because now fats has arrived.

Adding weight to Amstrad

No doubt the more curious Joyce owners will have cast aside their warranties and delved in to the machine's innards, perhaps discovering eight empty chip sockets nestling alongside the RAM chips already in place. Amstrad, known for their clever cost-cutting, are not a company likely to leave sockets on a board without good reason.

The 8256 was originally destined to be a 128k machine, with a 64k RAM disc but the price of 256k chips fell to the point where it was cost effective to re-configure the machine and give it the larger 112k RAM disc. This meant leaving a few holes. So, to make a Joyce fat, feed it some chips, throw in a second disc drive and there you are – a PCW8512.

The new deal

If you thought a 256k computer, one hi-res monitor, a printer, keyboard and disc drive was good value at £399, you should be ecstatic with the prospect of the same machine with an extra 256k added to the RAM disc and 760K floppy for only £100 more.

The second drive was always 'available' as an add on, but it can cost over £150, and a lifetime searching for one. Like the standard 'A' drive, the new 'B' drive uses 3in floppy discs, except these are known as CF2DD. The DD means that not only will they cost you more (about £5.95), but they are also designed to hold more data, recorded in a much denser pattern than with the normal floppies (the CF2DD are quad density as opposed to the CF2's double density). Where a CF2 has 39 tracks per side a CF2DD has 78, but the second drive has twin heads, one on each side of the disc,

which means that drive B has access to 156 tracks without your having to turn the disc over.

Fatter and fitter?

For the Joyce owner who only uses LocoScript there is little advantage to be had with the new, much weightier configuration. The real benefit of a corpulant Amstrad must be for those running business applications, typically large databases or space hungry accounts software. Of course the second drive would let you get started on your memoirs. Using a word processor like Wordstar or New Word you could have a text file with over 120,000 words, very nearly a book full.

Having nearly a megabyte of space divided between 256 possible file names, on a single disc, means you must adopt a disciplined system for naming your files. If you persist with file names like 'Letter.mum' you're going to get very confused. Perhaps this is the excuse you have been waiting for to delve into the fascinating world of CP/M user areas.

The expanded memory drive (an extra 256k) means that the M: disc now has a larger capacity than the 'A' drive. It's very tempting to load, not only your application software into this drive, but the resultant data files as well. The benefits of the increase in speed, particularly with database files, are great, but you must bear in mind that the security of that data is in the hands of your local electricity board.

I find that I still prefer to write my data directly to a floppy but now I can load more than one application into the memory drive on boot up. A good way to use the 3 drive configuration is to cram as many of your programs onto a 'B' floppy as you can. By writing a few simple submit files you can load any combination of programs automatically from the 'B' into the M: drive without your having to manually PIP the various files over.

My B: disc has two word processors, a database, spell checker, Brain Storm and a few useful utilities. Any single application can be easily loaded into the M: drive by typing in the name of the appropriate submit file. At first 760k seemed like a wide open field but it's amazing just how quickly you can fill it.

The new software

Diskit has been beefed up to take advantage of the new hardware. The most important addition gives you the ability to format a quad density disc – a simple enough operation – excz̄h must remember which way round you inserted the disc when you formatted it.

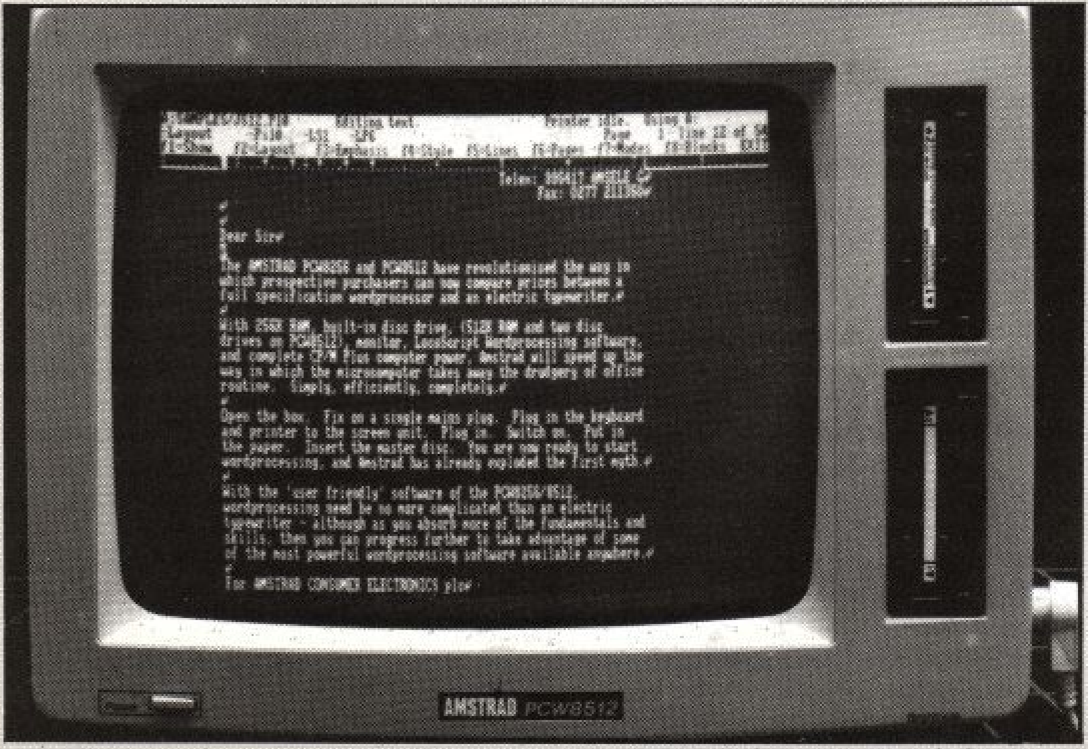
Disckit writes the directory on the side nearest the screen. If you later insert the disc the other way round, CP/M will tell you what a fool you are in the normal, unintelligible way 'track 0, sector 0 missing address mark' poetry isn't it?

Disckit also allows for copying between two mechanical drives but the two different formats confuse the issue somewhat. Copying between two double density discs is accomplished by reading from 'B' and writing to 'A' (it has to be that way round because the B drive can only read a single sided disc – not write one).

Copying a quad density disc is a little more long winded since Disckit will have to read and write in chunks, as many as six, prompting the operator to keep swapping the discs round in the 'B' drive. A quicker method is to use the memory drive as a staging post and copy with PIP. PIP's archive facility (known as the 'A' switch) makes this technique quite simple.

Using PIP to copy discs also has the advantage that it will re-organise your files. When a disc is partially full information will not necessarily be written into a number of consecutive sectors, particularly if you have deleted the odd file here and there. Instead a program could be stored in a number of sectors, scattered across the disc. This means that when the computer loads a program, the drive head has to scan to and fro across the disc – one sector from over there, near the hole, another from near the edge.

The larger the capacity of the disc the more noticeable the delay in loading a program. Moving files with PIP to a clean disc is a useful way of keeping your discs in order by collecting the fragmented sectors and writing them, consecutively to the new disc.



The new disc

The new Joyce comes with CP/M V.1.4 and LocoScript V.1.2. The differences in CP/M are very subtle, the most significant being that serial communications should be a little easier now that the implementation of XON XOFF has been improved.

Version 1.2 of LocoScript, however, heralds some welcome improvements not least being the ability to convert LocoScripteese text files to Ascii files. In fact there are two ways in which this can be achieved. You can either convert a Loco file to an Ascii file by removing all the weird LocoScript commands or produce a page image file where many of the commands are obeyed. This means the text file will have form feeds, indents, page numbering and the like – other word processors call this 'printing a document to disc'.

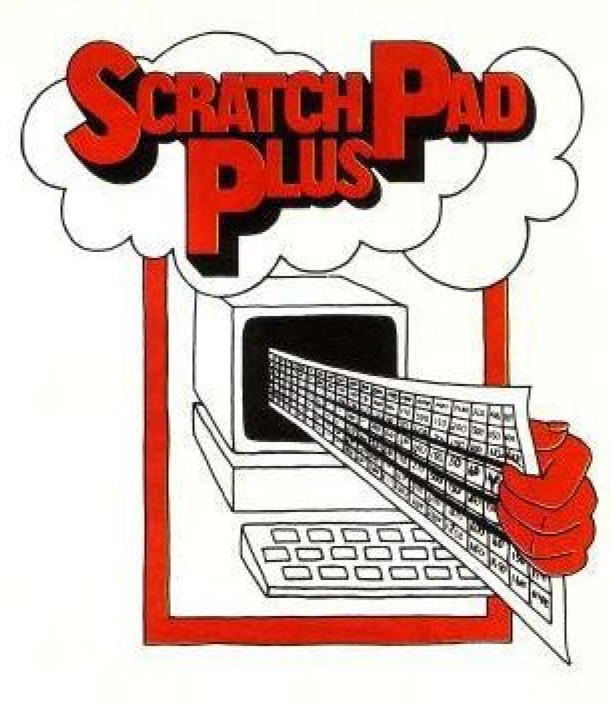
Getting LocoScript to number pages is a lot easier and you can print individual pages from a document rather than having to print them all. Using the TAB function no longer has the inherant dangers associated with its use in V1.1.

It's a great shame that the new Joyce couldn't be launched with some extra LocoScript software, perhaps a mail merge program, or a spell checker. Either of these would greatly enhance the value of the stand alone package to the business user. One horrible feature of the 8256 remains, namely, the shift lock key. This should really be a caps lock key in which case you would be able to get the numbers on the top line and not the silly characters above them.

If you study the Joyce adverts Amstrad almost seem to play down the fact that they are selling you a useful CP/M computer bundled with a very competent wordprocessor. To Amstrad the 8256 is little more than a typewriter. The 8512 is a first class machine with facilities which would be wasted on LocoScript. This is much more of a complete business machine. Fat Joyce it may be – overweight it certainly isn't.

ABC

What puts the **Plus** in the **ScratchPad** spreadsheet?



ScratchPad Plus is an electronic spreadsheet available for the Amstrad PCW 8256 and CPC 6128 computers. But it's the **Plus** that makes **ScratchPad** the only choice for all professional electronic spreadsheet users.

It's the **Plus** that gives what others give...

Plus

CAPACITY....

ScratchPad Plus is the ONLY spreadsheet that does not have an "OUT OF MEMORY" message – It doesn't need one! Because **ScratchPad Plus** is the ONLY spreadsheet that carries on giving you working space when other spreadsheets completely run out of steam.

The power of Virtual Memory!

ScratchPad Plus utilizes "Virtual" memory. Just like any other spreadsheet, it begins by building your model in memory. But unlike any other spreadsheet, **ScratchPad Plus** does not stop when you have used all the memory space available – It then pretends your disk drive is extra memory, and uses the space available to carry on calculating for you.

Anyone doing any serious spreadsheet work will tell you just how frustrating it can be when there just isn't any room left to complete your calculations!

Now that **ScratchPad Plus** is available, a spreadsheet just isn't worth considering unless it uses Virtual Memory!

Plus

FEATURES...

Multiple windows

Most spreadsheet programs allow you to view two parts of your spreadsheet at the same time. **ScratchPad Plus** is the only spreadsheet which gives you almost unlimited screen splitting capabilities.

Simultaneously view as many parts of your spreadsheet as will fit on the screen at the same time – Ask "what if" questions and see ALL the answers you need presented before you!

Design the spreadsheet around your application – Not the other way round!

With other spreadsheets, the theoretical number of rows and columns you can have is FIXED. If you need less columns, but more rows – NO CAN DO! With **ScratchPad Plus**, you decide how many actual rows and columns you require.

Display Pounds (£££££) not Dollars ($$$$$)

Let's face it – We are not part of the United States of America. Our currency is English Pounds (£), not US Dollars ($$$$$). **ScratchPad Plus** allows you to display the good old "£" sign – SOME OTHER SPREADSHEETS DON'T.

Plus

HELP...

Instant help

ScratchPad Plus has a comprehensive, easy to follow, user guide and tutorial which takes you step by step through all the features of the product. And there is a comprehensive set of help screens available to you all the time you are working with a spreadsheet.

Help just a phone call away

Every user of any Caxton product is backed by a skilled telephone support team who use the products themselves every day. If you have a question about **ScratchPad Plus** that the manual does not answer for you, it doesn't matter where you purchased our program from – just dial (01) 379 6502. The people who publish the product will help.

Help in the form of Training

Soon we will be beginning our series of **ScratchPad Plus** training courses at our training centre in Covent Garden. Pick up the phone and ask for details of prices and dates.

Plus

SMARTKEY II! (WORTH £49.99)

For a limited period only, we are supplying FREE with each copy of **ScratchPad Plus** one copy of SmartKey II – the very clever keyboard enhancer and macro facility which works with most CP/M software. Combined with **ScratchPad Plus**, SmartKey II will allow you to display windows, recalculate models, save files and print by just pressing ONE KEY!

And combine SmartKey II with other programs to take the tedium out of any regular keyboard work you have to do.

The price of ScratchPad (and all the "Pluses") is just £69.99 inc of VAT. Available from all good dealers, or call

(01) 379 6502 NOW

Caxton

Caxton Software Ltd.
10-14 Bedford St.,
London,
WC2E 9HE.
01-379 6502.

6128/8256 OWNERS! PAY LESS FOR THE BEST PROFESSIONAL PROGRAMS.

SUPERCALC 2

"It can't be faulted . . . probably one of the top five best-known names in the business software world, used by companies worldwide. It makes the 8256 even more viable as a low-cost business system". (Popular Computing Weekly 12/85)

"A classic spreadsheet . . . one major advantage over most other 'Calc' programs is a HELP function . . . very easy to use, easy to learn . . . a must for anyone who has hopes of running a business!" (Personal Computer World 02/86)

Clear, helpful manual with 12 lessons and sample spreadsheets already on disc. On-screen HELP. Advanced guide, too. 6128/8256. (Amsoft/Sorcim/IUS)

Save £5.00 on recommended price. Only £44.95.

CARDBOX

"Cardbox is a powerful database, it scores in being easy to use and understand". (Amstrad User 01/86)

Claimed to be the best electronic card-indexing system available. Now on the Amstrad for about £50 less than its usual price! Up to 65,000 cards in a file (depending on disk capacity.) Up to 26 fields and 1404 characters on each card. No limit to the number of indexed words you can search for on a card or file. Design cards as you wish. We've found Cardbox simple to use and the manual clear and helpful. 6128/8256. (Caxton)

Save £5.00 on recommended price. Only £94.99.

POPULAR ACCOUNTS

"The Sage package has the edge . . . the manual runs to 80 pages, is full of illustrations and is friendly, while still being concise". (Amstrad Action 02/86)

"Aimed at small businesses, but slightly larger than those who use Cash Trader . . . Sage maintains a User Hotline, which is extremely useful. This program is very powerful . . . it really does have all the power of more sophisticated accounts packages running on machines like the IBM PC, at a fraction of the cost". (What Micro? 02/86)

Detailed information/combination packages in our catalogue. 6128/8256. (Sage)

Save £5.00 on recommended price. Only £94.99.

AUDIO TUTOR

What the manual never taught you! Two double-sided audio cassettes take you through 4 forty-five minute, step-by-step lessons. Follow the instructions at your keyboard and learn to get the most out of your Amstrad soonest. 8256 only. (New Star Software) Two sound cassettes **£9.95.**

KEYBOARD TUTOR

This "Touch 'n' Go" keyboard tutor really works. By the end of the course, you should reach 40 words a minute with an alphabetic accuracy of 95% and a numeric accuracy of 100%. If you concentrate, you can do it in 24 hours! 6128/8256. (Caxton)

Only £24.99.

"Quite simply, you're the best". (G. Murrow, Edinburgh)

DR GRAPH

Data can be entered either manually or from a spreadsheet like Supercalc. You can produce line, bar, scatter and stick graphs as well as pie charts and text-only charts. Works with both Amstrad and Epson-compatible printers.

Bar charts can be stacked, clustered or arranged in steps or sticks. Pie charts can include exploded slices. Combine line and bar charts in one if you wish. Choose from 3 different type-styles for your text (plus the Amstrad face.) It's amazing the difference this program makes to the way you present your information. 6128/8256. (Digital Research)

Save £5.00 on recommended price. Only £44.95.

NEW — HITCH-HIKER'S GUIDE

"An excellent buy. If you are a "Hitch-Hiker" fan, even if you find adventures the most boring thing on (or off) Earth, you should buy it . . . pure Douglas Adam's genius". (Amstrad User 3/86).

Yes, you can play games on your 8256! "The Hitch-Hiker's Guide to the Galaxy" runs on both 6128 and 8256. It is one of the most famous of all games running under CP/M and is a text adventure which follows the original story fairly closely. It is a fascinating and compulsive adventure whose tricky problems will keep you glued to your keyboard for weeks during lunch-time or after work.

For 6128/8256. Hitch-Hiker by Infocom. Only £24.95.

DISKS £37.50 for 10

Double-sided 3" blank discs. Each disc in a hinged clear plastic box. Buy discs singly if you wish for **£4.00** each. Or save on ten, just **£37.50.**

BUSINESS CATALOGUE

Send £1 for our catalogue of business software, refunded with your first order.

6128 GAMES CATALOGUE

Send £1 for our catalogue of 6128 games programs, refunded with your first order. 20,000 words, illustrated with screen shots, quotes all the reviews.

6128 G.A.C.

"The Graphic Adventure Creator combines greater power with much greater ease of use. Both graphics designer and text organiser are in memory at the same time . . . it's a beautifully designed package". (Popular Computing Weekly 10/85)

"The most astounding program I've ever encountered on an eight-bit machine . . . Those who want to write adventures will find there is no better value-for-money product on the market. The neat simplicity and power of the commands, coupled with the tiny 17K the program takes up, puts it far ahead". (Amtix 12/85)

6128 only. The Graphic Adventure Creator by Incentive.

Only £24.95.

"By far the best service of any other mail order company".

(C. Green, Dorset)

TASWORD 6128

"For £24.95, you get a powerful and easy-to-use word processor and a superb data merge program . . . Tasword has truly grown up". (Amtix 12/85)

Text files up to 60,000 characters; on-screen HELP; all the expected features, plus four on-screen notepads. 6128 only. (Tasman)

Only £24.95.

TAS-SPELL 6128

"A very worthwhile system that meets, with ease, the requirements of all but the most prolific writers . . . very useful". (Amtix 12/85)

Dictionary disk with about 20,000 words on. Add your own words as you wish and check all your documents. 6128 only. (Tasman)

Only £16.50.

NEW — MASTERCALC 128

"A well-written professional program which works quickly and offers many useful facilities, well worth the money." (Amstrad Action 1/86).

A bigger, grander version of the famous "Mastercalc" programs which have been adapted and improved as the micros grow more powerful. Up to 7,000 cells, or approx. 100 rows by 70 columns. Any column width individually adjustable. HELP screen. 2 windows. Very friendly and easy to use and the illustrated 32-page manual is extremely helpful. 6128 only. MASTERCALC 128 by Campbell Systems.

Save £2.00 on recommended price. Only £32.90.

MINI OFFICE 2

If you're just getting used to your 6128, this amazing suite of programs on one disk could be the best introduction you could buy to the powerful serious uses of your computer.

There's a WORD PROCESSOR with a 40 or 80 column display: a DATABASE which will pass records to the wordpro: a powerful SPREADSHEET and a GRAPH program: a COMMUNICATIONS program to access Microlink or Telecom Gold and even a LABEL PRINTER.

All modules will use the AMX Mouse if you've got one. If you haven't send for our catalogue and save money! 6128 only. (Database) **Only £19.95.**

LASER BASIC

"Of tremendous value to anyone wanting to become involved in graphics programming . . . as good as you're likely to get". (Amstrad Action 02/86)

"Brilliant new games-writing aid . . . the manual is thankfully comprehensive and easy to follow . . . more than just a games designer, it's a major shot in the arm for your computer, driving it to new heights of performance. It's in a completely different league to any sprites or games designer package you may have seen before". (Popular Computing Weekly)

Laser Basic adds 200 new commands to your BASIC and lets you create arcade games with music, sound and action. 6128 only. (Ocean/Oasis) **Only £19.95.**

HOW TO ORDER

ALL ORDERS NORMALLY DESPATCHED WITHIN 24 HOURS

1. PHONE **01-846 9353** at any time, 24 hours a day. Tell us your computer type, name, address, order, credit card type and number and expiry date, plus your own phone number. During office hours, you'll get a person, not our Ansaphone. Order from anywhere in the world; satisfied customers in 64 countries!

2. WRITE to us at **SPEEDYSOFT, 37 Church Road, London SW13 9HQ, England,** enclosing a sterling cheque, postal order or bank draft or give your credit card details as above.
ACCESS/VISA/EUROCARD/MASTERCARD honoured.

3. EITHER WAY, please add the appropriate charge for p&p to your order. UK addresses £1 per program, Europe £1.50 per program, elsewhere £2 per program. UK prices include VAT, export prices are the same because of the extra work.

TERMS OF BUSINESS

1. All orders must be pre-paid in sterling or charged to your credit card. The banks have agreed not to sell software as long as we don't give credit.
2. In the unlikely event that you receive a faulty disk, we will replace it at once. But, please, just return the disk, not the manual as well.
3. Most programs require you to copy them to make a working disk. We are therefore unable to exchange disks for any other program or to issue refunds
4. Our liability is limited to the replacement of program discs shown to be faulty. We cannot be held liable for any loss arising out of the use of these programs.

WHEN ORDERING FROM THIS ADVERTISEMENT, PLEASE QUOTE REFERENCE 'AMU12'

ACCESS VISA

SPEEDYSOFT 01-846 9353

EUROCARD MASTERCARD

ABC REVIEW

Poly programs on the PCW8256

Business software has a reputation for being expensive. But it is possible to get a word processor, mail merge and graphics program for only £59.80.

Once the new Amstrad PCW 8256 user has mastered Locoscript – or at least enough of it to get by – the question usually crops up: "What else can it do?"

Happily the answer is quite a lot. By choosing CP/M Plus as an operating system Amstrad have allowed access to a myriad of existing CP/M packages.

Moreover, the advent of such a successful CP/M computer gives impetus to what was considered by many to be an exhausted area of software development.

The PCW 8256 has spawned many interesting new programs and the Poly series from Arcom software of Poole in Dorset is an example of this.

The series consists of four programs. Polyword is a word processor, Polymail is a mail-merging database, Polyprint is a multiple typeface printing program and Polyplot is a graph plotting program.

The series can be bought complete or in its component parts. Polyprint and Polyplot come with a set of nine typefaces. Two additional sets of eight typefaces are available at £19.95 per set. Each comes with a clear and concise A5 manual.

All the programs operate in the same menu-driven way. Locoscript users will immediately be at home with the concept of using the up and down keys to move the block cursor and pressing the Return or Enter keys to select an option. The Exit key is used to leave menus, data entry formats or to leave the program.

Polyword

It may seem odd to offer a word processing program for a machine which is sold with Locoscript, but there are good reasons for using a program like Polyword on the PCW 8256.

Firstly Locoscript is not a CP/M program although it does produce CP/M files. In this respect, although it is an excellent word processor, it is slightly isolated from the rest of the computing world.

If you wished to switch from using Locoscript to a CP/M program then you are forced to take out the disc, insert a CP/M disc and then re-boot by pressing Shift + Extra + Exit. This is neither fast nor friendly.

Worse still, normal Locoscript files cannot be handled by any other programs such as electronic mail systems.

Usually for files to be compatible with other programs they should be Ascii files – that is, they should contain only text in lines separated by carriage return and line feed. Later versions of Locoscript have an option to produce such files but you must request it specially and then you still must re-boot.

Ascii edit

A simpler way around this problem is to have an Ascii word processor available under CP/M. This is one good reason for using Polyword, although you could use any CP/M word processor such as Wordstar or the RPED program which comes with the Joyce.

Simple options

After the pyrotechnics of the Locoscript screen Polyword may look a bit austere. Only four primitive functions are provided on this main menu, but cleverly these are all that are needed to manage your CP/M files without leaving the program to use the separate PIP, SHOW, DIR, REN or ERA programs.

The Disc directory option will list all the files on the current disc drive. This also tells you the free space left on that disc.

The Locoscript f1 function is replaced by the Change disc option. The program tells you if you have requested an invalid drive like Z: or one which is not connected like C:.

When "delete file" is used some quite sophisticated checks are made to help you with CP/M file names. So characters like % and < are detected as you type them and you are reminded that they are invalid.

Also colons are only allowed as the second character of a file name. Type a colon anywhere else and it will soon let you know.

The first option, Choose file, is used either to create a new file or to edit an existing one. Once you have chosen a file you are in Edit Mode, ready to type new text or edit existing text.

At the top of the screen is a status line which tells you the current disc, file name, page number, line number, column number and insert/overwrite status. The other 31 lines are used for displaying and editing the text.

Polyword uses the same defaults as



COMPACT

ACCOUNTING SOFTWARE

for the **AMSTRAD PCW 8256** from **£49.45**

***Award Winning Compact Software** with over 12,000 packages already in use in businesses large and small has been tested and recommended by leading British accountants. The incredible value and success of Amstrads PCW 8256 Business Computer has enabled Compact to offer its proven packages at a fraction of the normal cost ● **DAYBOOK £49.45** our entry level system for the retailer or small trader includes everything necessary to imitate manually kept books. ie. Sales Daybook, Purchase Daybook, Cash Book, Nominal Ledger ● **COMPACT ACCOUNTS £199.99** is our easy to use Complete Accounting System including Sales Ledger, Invoicing, Purchase and Nominal Ledger. It produces Invoices, Statements also Debitors and Creditors Analysis, provides Credit Control Functions, Budgeting, VAT Analysis and Reporting. Full Audit Trails Product Profitability Analysis and Comprehensive Management Reporting to Trial Balance ● **COMPACT PAYROLL £99.99** Deals with weekly, fornightly, 4 weekly and monthly payrolls and conforms to all the latest N.I. and S.S.P. requirements. If you only require a single ledger ie. Sales ledger or Nominal Ledger each can be purchased separately at **£69.99** inc. VAT. All Compact packages can transfer data to **SUPERCALC, NEWWORD MULTIPLAN CRACKER, WORDSTAR.** So you can prepare cashflow charts with Supercalc or write to your customers using Newword without re -entering data already created in your accounting system. So don't delay **order today and let Compact start helping your business now!**

What the Papers say:- "COMPACT is a very well written system, extremely good value for money and very powerful". PC USER January 1985 — "COMPACT ledgers offer some excellent features for the small company". MICRO DECISION December 1985.

*In 1984COMPACT SOFTWARE won the "RITA" award which is to the information technology world what the "Oscar" is to the film industry.

COMPACT DAYBOOK inc. VAT + p&p = **£52.90** ☐

COMPACT ACCOUNTS inc. VAT + p&p **£203.00** ☐

COMPACT PAYROLL inc. VAT + p&p = **£103.00** ☐

SINGLE LEDGERS inc. VAT + p&p = **£73.00** ☐
(state which Ledger) ______

I enclose cheque payable to COMPACT SOFTWARE LTD. for ______

Return to COMPACT SOFTWARE LTD.
1 Ensbury Park Road, Bournemouth, Dorset BH9 2SQ

NAME ______ ACU5

COMPANY ______

ADDRESS ______

TEL. NO. ______ Please allow 28 days for delivery

SAVE UP TO £300

COMPLETE YOUR SYSTEM WITH A PROFESSIONAL PRINTER TO YOUR PCW8256



Heavy Duty Unit

Print speed 17-20 cps bi-directional.
10, 12, 15 pitch & Proportional Space Print.
17" paper width for those wide spread sheets.
Diablo compatible daisy wheel.
12 months warranty.
Supports all of the popular software packages.

INCLUDES:

SILVER REED EXP-550 DAISY WHEEL PRINTER.
SILVER REED Single Bin Cut Sheet Feed (not shown).
AMSTRAD printer expansion interface & parallel cable.
Either of the following software packages.
Pre-Configured for your PCW8256.

NEW WORD 2 £599.00
Including PCW8256 £978.00

MICROPRO system £699.00

Wordstar
Mailmerge
Calcstar
Infostar
Free Prostar Training Guide

Including PCW8256 £1,078.00

Please supply:

NEW WORD 2 System ☐
Silver Reed EXP 550 Only ☐
MICROPRO System ☐

Prices exclude VAT.
Free Delivery in the UK.
Official Customer Order & Cheque Enclosed £______

Made Payable to:
WILDRIN LIMITED,
98-100 High Street, Barnet, Herts EN5 5XQ.
Tel: 01-441 7581. Telex: 298951 BILWAY.
Dealer Enquiries Welcome.

Wordstar of 65 characters per line and 55 lines per page. These can be easily changed using the ALT+O option.

Arcom were aware that Polyword would be used primarily by people who were ingrained with Locoscript editing habits and so they decided to stick to the same use of keys on the numeric key pad. This makes life a lot easier in moving between Locoscript and Polyword.

Arcom also realised that the other common key configuration is that of Wordstar. For this reason they have duplicated some functions so that either Locoscript or Wordstar keys can be used interchangeably. For instance if you wish to move the cursor back a word you can either press Shift+ Alt+ Word as in Locoscript or ALT+A as in Wordstar.

Typing can either be insert or overwrite and you can switch between modes using ALT+V. Word wrapping is automatic at the end of each line and it cannot be switched off.

The editing functions provided are adequate but not comprehensive. The cursor can be moved up, down, left or right and the screen will follow the cursor if it goes off the top or bottom. In addition the screen can be moved up and down by a line or by a screen full (30 lines).

The Tab key gives you fixed tabs at every eight columns. There is a Find string function but there is no Exchange as in Locoscript.

Paragraph reforming is done fairly quickly by pressing Relay or ALT+B. The text is reformed to the current number of characters per line.

A summary of the editing functions can be displayed on the screen by pressing ALT+J.

If you require any foreign characters in your document you can press the 2 key on the numeric key pad. This puts up a window with the codes for all the available foreign characters. So to include a Danish dipthong AE one would press 2, enter 146 and then press Return.

This is not as elegant as Locoscript where some characters can be typed as accent followed by vowel but at least it is consistent. All the characters in the range 127-186 can be printed subsequently in any of the Polyprint typefaces.

Function keys

The function keys are used during editing for file operations. So you can display directories, change discs, delete files or rename the current file without leaving edit mode.

Function key 1 is used to display the Print menu. This allows you to choose between draft or high quality, and bold or normal density in any combination. You can also set justification, left margin, form lengths and page pauses. The last option in the print menu allows you to select a Polymail file with which to merge print.

The main limitation of Polyword is that it can only handle files of up to 200 lines and the maximum line length is 80 characters. This should not be too much of a problem if you are either doing electronic mail or sending circular letters – four pages is usually more than enough for either medium.

Polymail

Polymail is a small mail-merging database used for producing circular letters and address labels. In operation it is very similar to Polyword. The main menu is identical except that the first option is Choose list.

A Polymail list is a series of up to 100 records stored in alphabetical order. A list is given a CP/M name when it is created and you can have any number of lists on one disc.

The Polymail program is used to create and edit the address records while the actual mail merging – the combining of names and addresses and the proforma letters – is done by the Polyword program. The Polyprint typefaces cannot be used for circular letters in Polymail.

Each record has a name of up to 20 characters. This can be the surname of the addressee, a serial number or a combination of date and surname. The records are sorted in strict Ascii order so it is up to the user how best to use this name.

Once you have accessed a list its entire directory is displayed on the screen. You can use the up, down, left and right arrows to move the block cursor on to the record you wish to edit. Alternatively there is an option at the top of the screen to create a new record.

When you access a particular record you are presented with a form which you can freely edit using the same edit functions as in Polyword. The record form is shown in Figure 1.

The markers at the right of the format, &A-&L, are the tokens you insert in the letter. These are substituted on mail-merging with the data from successive records.

So in the proforma letter you would type "Dear &H" – and upon mail-merging that would automatically become "Dear Mr Smith," or "Dear John," and so on.

The descriptions at the left of the format are merely suggested uses, the fields in the record can be used for whatever you wish. The four miscellaneous fields could be used, for example, to insert amounts owed to you by your debtors. By doing that you could quickly mail-merge a complete set of statements to your customers each month.

Foreign characters can be used in records as in Polyword. The system can print circular letters on cut sheets *(not round ones – Ed)* or continuous stationery, and address labels can be produced automatically.

Polyprint

Polyprint is a program which will really get your Amstrad printer turning cartwheels. Although the 8256 printer is a very good one you can only really print two styles – draft or high quality. The other options of bold, italic, or double width are really tricks of the trade to massage the original two.

Polyprint allows you to print in any of a repertoire of 25 distinctive typefaces. You can choose the stylish art deco, of Broadway, the quaint charm of Old English or the copperplate elegance of Commercial Script. The full range of typefaces can be seen in Figure 2.

The print quality and variety is remarkable, achieved by having a much larger matrix for each character.

Draft quality letters on the Amstrad use a matrix of 6 by 8 dots – (48 dots). Polyprint characters use a matrix of 14

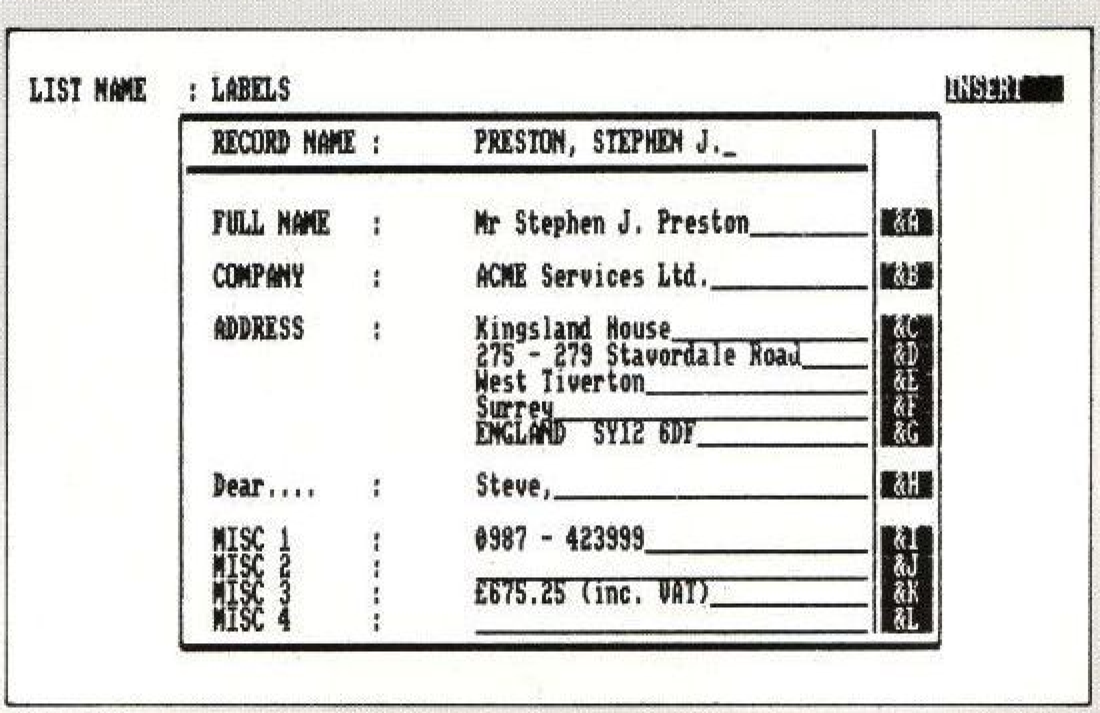


Figure 1

by 18 – (252 dots). Nine of the 25 typefaces are termed large – these use a matrix of 20 by 32 dots (640 dots).

The program accepts Ascii text either from Polyword or from spreadsheet .PRN files. Printing is normally proportionally spaced but four of the typefaces can be used in 80-column mode for use on spreadsheets.

The Miniscule Print typeface can be used to print spreadsheets up to 160 characters wide on the Amstrad printer.

The program itself is very easy to use. Like the other Poly programs it uses menus for all selections. Basically all you need to do is choose a file, choose a typeface and then start printing.

There are a number of asterisk commands you can include in your text file. For instance *C will centre a line, *U will underline the current line, *W will cause the line to be printed in double width, *L can be used to change the left margin, and *J can be used to change the justification width or to switch off justification.

The most important asterisk command is *Tn. This allows you to change typeface in the middle of a document. So for instance to do a very bold double sized heading you might use *T114 (Sans Serif Large).

Then for the body of the document you might choose *T9 (American Typewriter Medium). That typeface will be used until the next *T command is found.

Typeface switching can only be done on a line basis. So you cannot put a particular word on a line into a different typeface.

Polyplot

The last of the Poly series is Polyplot which can be used to plot bar graphs, line graphs and pie charts.

Being consistent with the others Polyplot has broken the task of describing a graph into a small number of simple menus.

Basically you just describe the type of graph you want, then input the data to be plotted and finally print the graph. In addition you can store the graphs and later retrieve and edit them.

So you could have a graph of monthly sales performances which each month you call up, update, re-print and then store back on to the disc.

Describing the graph breaks down into stages of choosing between bar, line and pie graphs, editing the titles and legends on the graphs, labelling the X axis and putting a scale on the Y axis.

Any of the legends can be typeset in any of the Polyprint typefaces just by preceding it with a *Tn command. The typeface remains in use till the next *Tn switch.

Inputing data consists of deciding how many sets of data you wish to plot, how many points to be plotted in each set and



Figure 2

finally the input of data values for each point.

A graph can have up to four sets of data plotted on the same axes and each set can have up to 20 points. But you should note that plotting a comparative histogram of four sets of 20 points is packing rather a lot of information on to your eight inch piece of paper.

When you have described the graph fully you can start printing. At this point you can probably pop out and put the kettle on. The plotting is done by forming an image on the RAM disc drive M: and as there are more than 500,000 pixels in the image it does take about five minutes to build it up. Examples of the graphs it can plot are in Figure 3.

Polyplot will not pick up output from spreadsheets or databases. But the data entry section of the program is quite sophisticated and it does not take long to bash in 12 months' figures. This has the virtue of simplicity and lack of protocol.

Conclusions

The Poly series is a consistent and well-written set of programs which will extend the versatility of the PCW 8256. They are easy to use yet powerful.

Polyword has not tried to re-invent the Locoscript wheel but it provides simple Ascii word processing and with Polymail an efficient mail-merging facility.

Polyprint greatly enhances your printed output. Choosing between typefaces gives a new dimension to your word processing and the double size fonts are really very striking. Whether it is used for letters, notices, price lists or menus it adds style to any document.

Polyplot is an effective way of producing graphs simply and efficiently on your printer. The plotting is slow but the image produced is excellent and certainly conveys a great deal more information than a table of figures.

It is nice to see that high quality software can be provided at a reasonable price thus keeping in step with the general Amstrad philosophy of value for money.

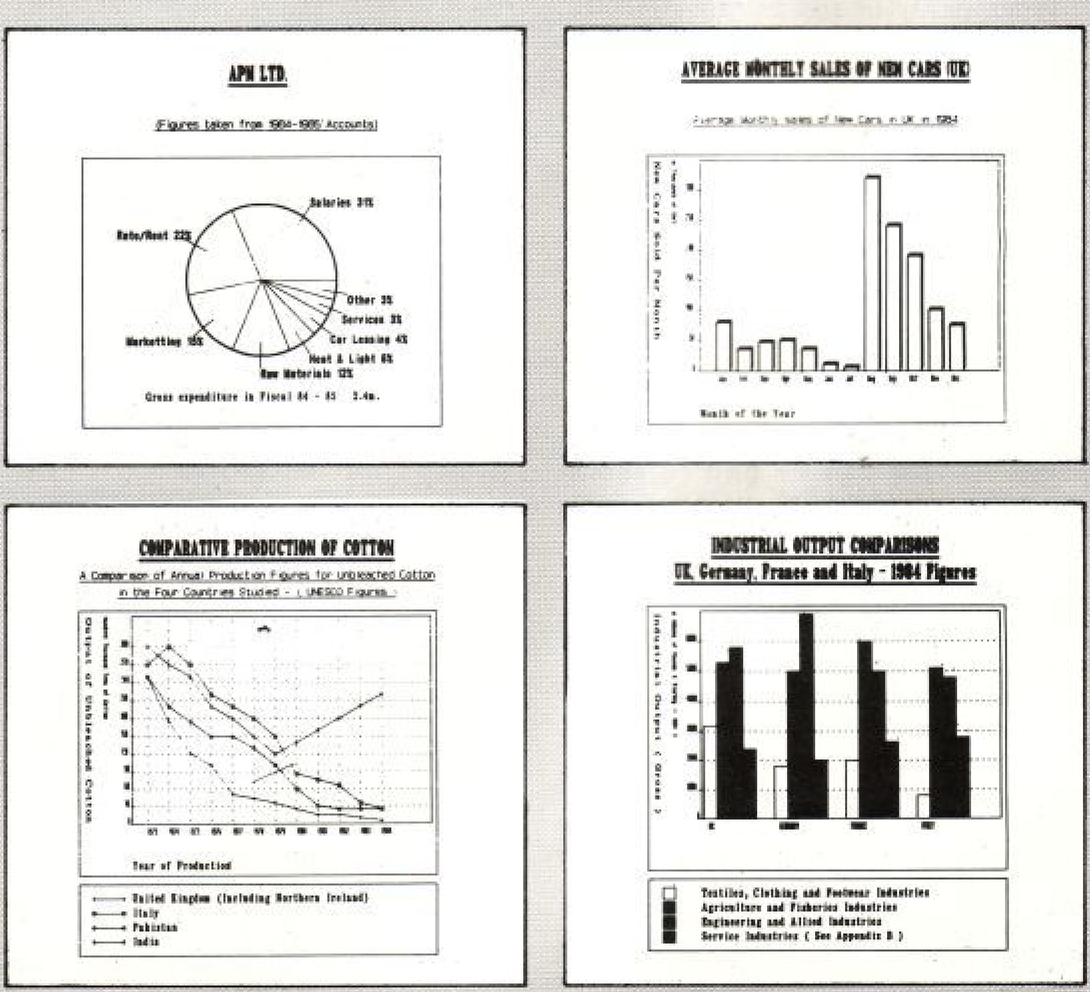
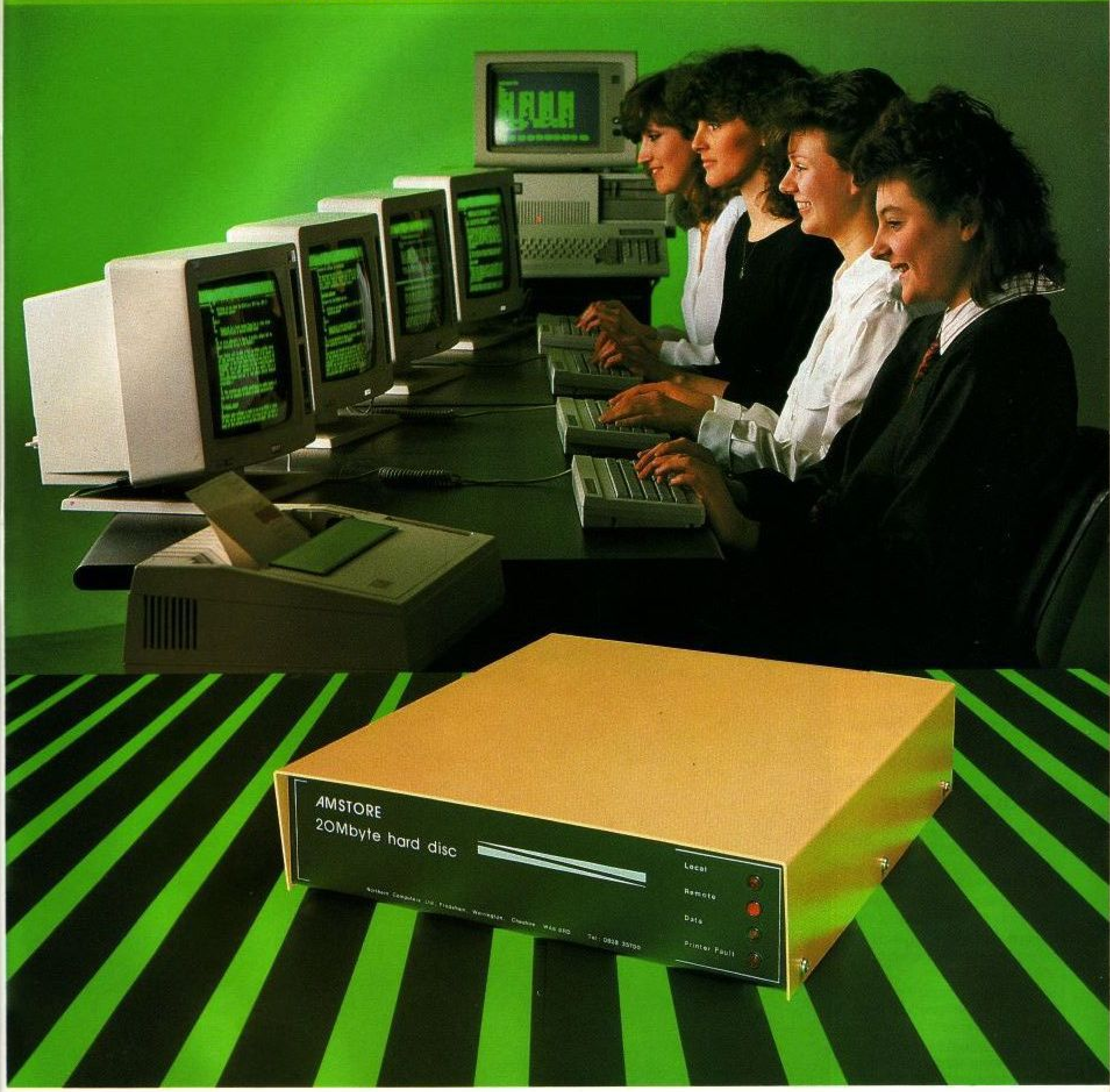


Figure 3

ABC

AMSTRAD COMPUTERS ARE EXCELLENT VALUE

NOW THEY ARE <u>100 TIMES</u> MORE USEFUL



THE AMSTRAD NETWORK AND HARD DISC GIVES YOU:-

- ★ A hard disc with more than 100 times the capacity of 3″ discs.
- ★ A network allowing between 1 and over 100 Amstrad computers to be connected to the same hard disc for sharing of programs, information files, accounts and word processed documents.
- ★ Shared high quality output from daisywheel or laser printers.

TECHNICAL FEATURES

Each 20 Megabyte Amstore supports file and print serving as well as print spooler using the integral parallel printer interface.

The Amstrad network is a true token-passing multi-user ring network with file locking, max length 3km, max 120 stations. Stations include all existing Amstrad computers, 20 megabyte Amstores, printer stations, IBM PC, Apricot, BBC & Apple microcomputers.

The ring system supports modems, telecommunications and mini/mainframe communications.

Files can be copied from one micro to another, even with different computers.

Please send me an Amstrad Hard Disc and networking brochure.

Name: ....

Company/Organisation: ....

Address: ....

....

Position: .... Tel. No. ....

Intended applications if known:

Word processing ☐	Education ☐	Accounts ☐
Database ☐	Solicitors ☐	None of these ☐
Communications ☐	Spreadsheet ☐	

Other professional applications ....

northern computers

Northern Computers Ltd., Churchfield Road, Frodsham, Cheshire, WA6 6RD Tel: (0928) 35700 Telex 265871 MONREF G (Quote 84: CXX 123)

POWER BEHIND



Light Pen

A sophisticated Graphics Package which includes a Colour Palette, Nudge Control for one pixel accuracy, Brush Choice, Text Handling and User Defined Characters.

It can Magnify, Shrink, create Circles, Rectangles, Lines, Curves and Colour Fill.

There is Picture Storage and Retrieval, a Pen Callibration utillity and Printer Dump.

There is casette driven or ROM software for the 464 and ROM software for the 6128.

Casette **£19.95.**
ROM **£29.95.**

Speech Synthesiser

A speech synthesiser and powerful stereo amplifier which greatly improves the quality of the internal speaker.

Extremely easy to use with an almost infinite vocabulary.

Supplied with text to speech convertor for ease of output creation.

Includes two high quality four inch speakers designed to compliment the Amstrad.

There is casette driven or ROM software for the 464 and ROM software for the 6128.

Casette **£29.95.**
ROM **£39.95.**





DK Tronics products are available in all good computer stores. If you have any local problems obtaining them contact us directly.

You can order by phone quoting your Barclaycard or Access number, orders are normally despatched in 24 hours.

YOUR AMSTRAD



64K Memory Expansion

Converts the 464 into a 6128 (except for the ROMS) and gives 128K of memory.

The 64K gives the same amount and configuration of RAM as the 6128.

It is supplied with bank switching software in the form of RSXs to use the second 64K RAM as storage for screens, windows, arrays and variables.

It allows the use of CPM plus as supplied with the 6128.

It requires no additional power supply.

£49.95.

256K Memory Expansion

Converts the 464 into a 6128 (except for the ROMS) and gives a total memory of 320K.

Gives the same memory configuration as the 6128 but there are four extra banks of 64K.

It is supplied with bank switching software in the form of RSXs to use the memory as storage for screens, windows, arrays and variables. The 250K can store 16 full 16K screens.

It allows the use of CPM plus as supplied with the 6128.

It requires no added power supply.

£99.95.

256K Silicon Disc

256K of RAM disc accessible many times faster than the conventional drive and with a greater disc capacity.

It can be logged on as drive B or in a two drive system as drive C.

It will accept all normal Amstrad disc commands i.e. load, save, cat, etc.

Data can be transferred onto the silicon disc from a normal disc or from RAM, application programmes can then work on the data at vastly increased speed.

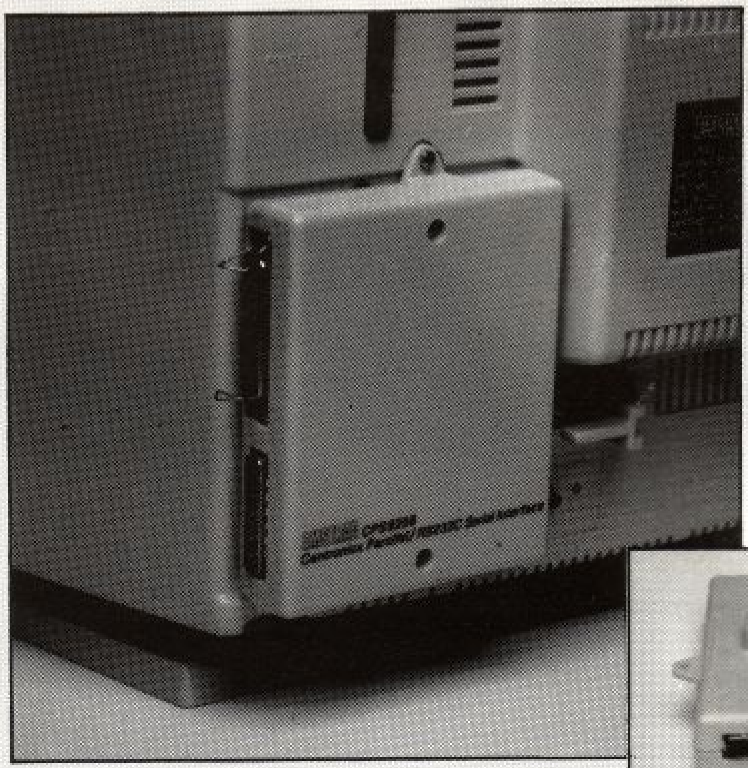
£99.95.

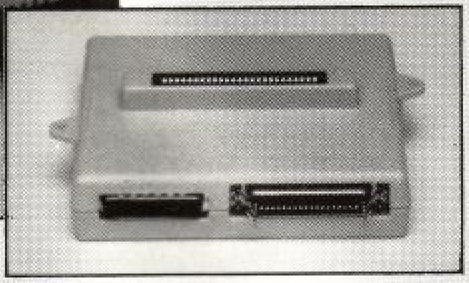
dk'tronics

MANUFACTURERS OF POWERFUL PERIPHERALS

DK Tronics Limited
Englands Lane, Gorleston-on-Sea, Great Yarmouth, Norfolk NR31 6BE
Phone 0493 602926 (24 Hours), Telex 975408.

ABC
REVIEW





The CPS 8256 interface

What a mouthful for an add-on eh? But then Amstrad always has had the knack of picking strange names for products. Still, this funny little white box seems to be in much demand at the moment – Vax finds out just why.

A common complaint from Joyce users is that they really do want a daisywheel printer, no matter how much Amstrad praises the bundled printer. Some people just want to plug in to a faster, wider, and more durable printer which inevitably costs more than the computer itself. Other people want to be able to talk to MicroLink, Telecom Gold, Prestel, John Smythes Bulletin Board and so on. Some people want the lot.

The box – I've given up with CP whatever – has two ports to the outside world, RS232 and Centronics. The Centronics port is for external printers and requires a Centronics to Centronics lead. Though these are at least a standard, they are not easy to find and rumour has it that even the people in Amstrad have resorted to canibalising DMP-2000 leads and making their own in the workshops.

Unlike the Arnold family of micros this Centronics interface is an eight bit one. I know that the official standard is seven bit, but nobody's told Epson that. Anyway, people with Epson-compatible laser printers can have a field day.

Bog standard RS232

The RS232 half of the interface is a bog standard RS232. You plonk one end of the cable (make sure you've got the right type) in the box, the other end in your printer or modem, deliver a magic spell to the Great God CP/M, and it all works as described in the manual.

CP/M

Note the word CP/M up there. This box does not talk with Locoscript, so anyone wanting to print out letters will have to use Rped, a Locoscript to Ascii converter, or one of the highly publicised Wordstar look-alikes as relentlessly advertised in the ABC section.

Owners of very slow Centronics or daisywheel printers may find that they get "Device not ready" errors from time to time. This is due to the printer not talking to the computer for some time, while doing a form feed for instance. The computer gets a bit miffed and complains. Amstrad Technical has a fix for this if it really worries you.

Communications

For communications we'll start off with the explanation of ways of shoving data to and from the outside world. In the beginning there was Pip, which worked. Then the user said: "Let there be a great profusion of different communications packages". And lo there was much

confusion, howling, profanities and gnashing of teeth.

One-way system

Pip is fine for sending a file to, or receiving it from a portable computer or suchlike. By using the V option you can even see the file as it goes over. Unfortunately you can only go one way at a time. To converse with something, say, on the other side of a modem you need a comms package.

Amstrad supplies a little utility called Mail232, safely hidden away on every Locoscript disc. It is not exactly the best thing since sliced bread, but it will let you talk to MicroLink and Telecom Gold. Two main problems here – it always resets itself to the same (almost useless) baud rates, and when receiving files it loses characters when writing to disc.

The first problem is insoluble without the use of a disassembler and a mind that converts hex to Hebrew *(The man's drunk – Ed)* while doing the Times crossword. The second problem can be helped by first moving to the M disc and then typing A:MAIL232. Any files you receive will now go to the RAM disc, which takes less time to access and loses less characters. You can forget Prestel with this package.

One smarty bit with the Mail232 program (version 1.1 or greater) is that if you go to the bottom of the f3 menu and type [EXTRA] P, you end up in a game of life. Cursor keys move the cursor, [ENTER] sets a cell and [SPACE] starts or stops it.

Prestel and viewdata

Back to Prestel and viewdata. There are a few packages around now that can handle Prestel. Some – KiwiChat and Honeyview – really do graphics, others cheat and put up asterisks instead.

For less error-prone transmission and receiving of files through MicroLink and Telecom Gold and so on there are programs such as Honeyterm and Chit-chat. KiwiSoft have included this with their Prestel package.

Baud rates

Some of these packages let you save away your favourite baud rates for different systems and include ways of transmitting files containing strange codes reliably.

Speaking of strange codes, Locoscript files are not in Ascii, so to transmit them you have first to convert them into, say, Intel hex. Some funny protocols supplied with some of the communications packages are capable of transmitting Locoscript (and .COM) files, but most systems can understand Intel hex. You can always run them through a Loco-Ascii converter and transmit the result.

Locoscript can include any Ascii file with the "insert text" command (f7 while editing). Amstrad has its own funny protocol which transmits between its machines and anything with CP/M and RS232 output on the punch device. If you don't understand that it's not going to be a lot of use to you anyway.

Conclusion

The product is sound, can be literally bolted on to the back of the computer so you don't accidentally unplug it with your printer, and has a comprehensive manual.

I feel it is a bit overpriced at £60 plus Very Abhorrent Tax, but at the moment Amstrad has a captive market. Other firms are taking great interest in producing an RS232 only add-on, and I wonder what will happen in the future.

ABC

IF YOU REALLY WANT TO KNOW THAT THE PROGRAM YOU BUY WILL MATCH YOUR REQUIREMENTS AND YOUR WALLET

Software City®

THE UK'S NO. 1 SOFTWARE DEALER LTD.

FREE................
90 Day 'Hotline' support provided with all Sagesoft Programs.

FREE................
'ONE TO ONE' Mailbox worth £50 with every 'Chit Chat' package.

Sage 'Chit Chat'... The ability to send a TELEX for under £500.

Sage 'Popular' Accounts	**£99.95**
Sage 'Popular' Payroll	**£ 69.95**
Sage 'Popular' Invoicing and Stock Control	**£69.95**
Sage 'Popular' Combo ('Popular' Accounts/Payroll)	**£149.95**
Sage 'Popular' Accounts Plus ('Popular' Accounts/Invoicing and Stock Control)	**£149.95**
Sage Super Combo ('Popular' Accounts/Invoicing and Stock Control/Payroll)	**£199.95**
Sage Accounts Statement Paper per 1000 sheets	**£40.00**
Sage Payroll Payslips per 250	**£12.50**
Sage Retrieve Database	**£69.95**
Sage 'Chit Chat' Viewdata (ie. Prestel)	**£69.95**
Sage 'Chit Chat' E Mail	**£69.95**
Sage 'Chit Chat' Combo (Viewdata and E Mail)	**£99.95**
Sage Modem with Viewdata or E Mail (requires RS232)	**£199.95**
Sage Modem with Viewdata and E Mail (requires RS232)	**£239.95**

DR CBasic Compiler	**£49.95**
DR Graph	**£49.95**
DR Pasca;/MT+	**£49.95**
DR Draw	**£49.95**
Caxton Cardbox	**£99.95**
Caxton Touch 'N' Go	**£24.95**
Caxton Scratchpad	**£69.95**
Caxton Smart Key II	**£49.95**
Caxton Brainstorm	**£49.95**
The Cracker	**£49.00**
Saxton Flexi-File	**£49.95**
Compsoft Delta	**£99.95**
Supercalc II	**£49.95**
Locoscript Tutorial	**£9.95**
AT LAST	**£49.95**

AT LAST is a fully relational database including automatic sorting on pre-defined keys.

Guaranteed Next Day Delivery For orders received before 12.00 am
(please ring for stock availability)

New Word with Spell Plus	**£69.95**
Pocket Wrodstar	**£99.95**
Pocket Spellstar	**£39.95**
pocket Calcstar	**£49.95**
Pocket Datastar	**£69.95**
Pocket Reportstar	**£49.95**

Cash Trader with Analyser	**£114.95**
Cash Trader with Analyser	**£149.95**

Evaluation Copies of the Cash Trader are available on 14 day Money Back Guarantee at **£19.95**

Iansyst Typing Courses	**£24.95**
DBase II	**£455.00**
ABC8 Sales and Invoicing	**£99.00**
ABC8 Nominal	**£33.00**
ABC8 Purchase	**£33.00**
Cashbook Accounts	**£49.95**

AMSTRAD PCW8256 *FREE DELIVERY .... £399 + VAT
AMSTRAD PCW8512 *FREE DELIVERY* .... £499 + VAT

LOOK!

Businessmen and Schools
Come and see the Northern Computers 20 Megabyte Hard Disk Network System
(No More Problems Storing Thousands of records On-Line)

For the Service you've always wanted but couldn't find!

Demonstrations available. Installations carried out if necessary.

382 Kings Road
Chelsea
London
SW3 5UZ
Tel: 01-352 9220

14 Thames Street
Kingston Upon Thames
Surrey
KT1 1PE
Tel: 01-541 4911

47 Cheap Street
Newbury
Berkshire
RG14 5BX
Tel: 0635 31696

Mail Order Welcome
ACCESS and VISA or cheques to 'Software City'
Trade and Export enquiries welcomed.

ABC SPECIAL

Advanced Locoscript ...for Beginners!

Not many people know that there are tiny men and women inside their Joyce who spend their time operating Locoscript. This month we meet Eddie and Pete. Eddie is showing Pete, a newcomer to the Locoscript team, the printer and explaining to him why many users have problems printing their documents.

Pete and Eddie were watching the document coming out of the printer from their vantage point under the printer cover. "What a wally!" exclaimed Eddie disgustedly. "He's got the last line of page one on page two again. I'm fed up with him mucking up his document and then blaming us. Still, when you've been around for as long as I have, Pete, you'll realise that you have to make allowances.

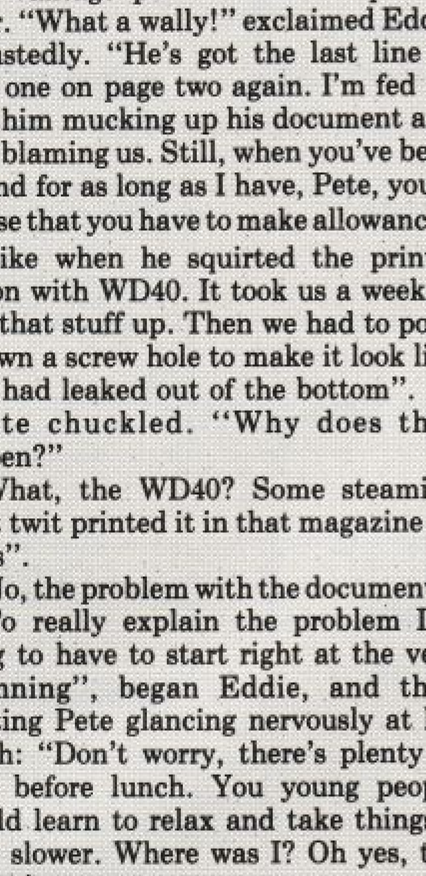
"Like when he squirted the printer ribbon with WD40. It took us a week to mop that stuff up. Then we had to pour it down a screw hole to make it look like as it had leaked out of the bottom".

Pete chuckled. "Why does that happen?"

"What, the WD40? Some steaming great twit printed it in that magazine he reads".

"No, the problem with the document".

"To really explain the problem I'm going to have to start right at the very beginning", began Eddie, and then spotting Pete glancing nervously at his watch: "Don't worry, there's plenty of time before lunch. You young people should learn to relax and take things a little slower. Where was I? Oh yes, the beginning.



"Locoscript has been designed to be portable. That doesn't mean it has a handle screwed to it, before you make some smartalec remark. It means that it could be altered to work on other machines. Now one of the side effects or symptoms of a portable program is that it is written in several parts. Each of the parts has a different function. The part that we're talking about, is the printing part. This is a separate part because the Joyce has its own printer, which is totally unique and 'dedicated' to the Joyce".

"How romantic".

"Locoscript has complete control over the printer", continued Eddie, ignoring the interruption, "and uses it in a way that gets a greater performance out of it than would be possible from a non-dedicated printer. When the same printer is used from CP/M it works just like a non-dedicated printer and some of the things that can be done by Locoscript can't be done under CP/M.

"For example, all the characters that can be made to appear on the screen when a document is being edited with Locoscript can be printed out on the printer. Locoscript has over 200 characters that can all be printed in italics".

"So the special part that does the printing, could only work with the Joyce printer?" Pete asked.

"That's right. And that's why it has to be separate. So that it can be replaced by a program to operate some other printer".

"But I still don't see how that makes the document print out wrong".

"I'm coming round to that, impetuous youth! There are a lot of subtle concepts here, that I'm trying to put over. I shall continue. Even under Locoscript the printer has to be treated as a separate device with its own control mechanisms. On a normal printer there are DIP switches and press buttons. These set up the printer to operate in a particular way and they allow things like feeding the paper in and turning the printer on and offline.

"A Joyce printer has no DIP switches or buttons. All of those type of functions are set by using software menus. Operating a normal printer it's possible to set anything at any time and on the Joyce it's just the same.

"There are two ways the user can interrupt what's going on and tell us he wants to get a message to the printer. He can either press Ptr or he can 'rattle the bail-bar' by bringing it forward. When that happens, we flash a sign saying 'Printer' to remind him that this is not a Locoscript function.

"Of the many things that can be set on a printer the most important is the form length. Using fanfold continuous

stationery it's usual to make the printer skip over the perforations in the sheets. To do this the printer needs to know how long, in lines, the area to print on is, and how big, in lines, the gap should be.

"When the printer is using single sheets of paper, it needs to stop and wait for another piece of paper to be fed in. It does this by knowing how many lines of text it can print on a piece of paper and it uses the form length setting to know how long the paper is.

"A favourite trick of our friend, 'Mr Keyboard-walloper', is to lie to the boys in the printer and tell them that he's using continuous paper when he's using single sheet. The stuff gets printed out, but it's slightly squashed up. This is because the tractor feed pulls the paper through slightly faster than the friction feed in order to keep the paper taught. The paper isn't fed quite as far as when using single sheet paper because it's being pulled faster. So if the paper's not being pulled faster, the print get's squashed up".



"I didn't quite understand that, could you say it again slower?" enquired Pete. Eddie ignored the cheeky remark and continued. "Anyway, it's very important to give the printer accurate information about the paper being used. The three things to tell it are whether single sheet or continuous paper is being used, the page length and the gap length. Useful values are already given in the F1 menu when Ptr is pressed".

"Why does a gap need to be specified when single sheets are being used?" asked Pete.

"Ah! I'm glad you asked me that. That's the first intelligent thing you've said all morning. You have seen the rollers that grip the paper against the platen underneath. As soon as the end of the paper has passed beyond those rollers it is out of control and flops around. There are three lines between the print head and the rollers so these three lines cannot be printed on.

"Now pay attention 'cos this is where it gets complicated. The lines that can't be printed on are called 'no-mans-land'. Up to now we have been saying there are three lines of no-mans-land at the bottom of the page, but this is with the paper out detector defeated. If the paper out detector is enabled the printer will stop and say to Locoscript 'I'm waiting for paper' when the end of the paper is detected. This is five lines before the end of the page. Either way, when single sheet is specified, the printer will stop and wait for more paper. With paper out detection defeated the end of the page is calculated by the number of lines that have been printed. So it's possible to confuse the printer by turning the knob at the side and cause the printer to print on the platen.

"Some people insist on printing on continuous paper with single sheet set. Of course the printer still stops, waiting for paper at the end of each page. The printer cannot spot the perforations in continuous paper so it won't automatically skip them or find the top of the page.

"Locoscript provides a special option F2 that can clear 'waiting for paper' because it's perfectly reasonable to expect people to print a draft copy of their document onto continuous paper. The rule that must be followed is not to print a document larger than the paper. The page as it is set up for editing and the page as it is set up for printing are two separate entities. Only if the two match will the document be printed correctly".

Pete nodded his understanding. "So a change to one means a corresponding change to the other. Well thanks for the lesson, Eddie" he said heading off for his lunch.

"Ah, but that's not the end of the story", said Eddie. Pete shuffled back sheepishly and Eddie continued: "I haven't talked about headers and footers yet. There are three sections to a page, the header, the page body, and the footer. Headers and footers include the no-mans-land at the top and bottom of the page. With single sheet paper there is a no-mans-land of six lines at the top of the page. This allows the paper to be fed under the bail bar. So the first line that can possibly be printed on when using single sheet is line seven.

"Locoscript doesn't assume that it is using the Joyce printer, as I have already hinted earlier. So it can't assume that there will always be a six line no-mans-land at the top of every sheet. The no-mans-land at the top is assumed to have been catered for in the header and the same goes for the no-mans-land at the bottom coming from the footer.

"The person responsible for setting the correct amount of no-mans-land is the person setting up the headers and footers. Locoscript doesn't police the amount of text in headers and footers. So there is even more scope for a user to put in more text than can fit on a page. A standard A4 sheet had a header zone of nine lines. The top six are no-mans-land. The next three are header text. Lines 10 to 63 make up the page body, 54 lines that can contain the 'meat' of the document". At the mention of meat Pete's stomach rumbled.

"The footer is seven lines long. The three lines nearest the bottom are no-mans-land. The four above are for the footer text".

"Does that mean if the header and footer zones contain only lines of no-mans-land and no text, that the page body could have 61 lines of text on it?"

"That's right, 54 plus three at the top and four at the bottom is 61. The first possible line that can be printed on is line seven and the last is 67".

"You keep talking about first and last possible lines. Why are they so important?"

"These are important to the printer. The printer cannot be flexible about where on the paper it starts printing. It has to start printing on or after the first possible line and finish on or before the last. So if a header is set up that has too few lines put aside for no-mans-land and then a document is printed Locoscript may be saying 'print at line five' but the printer will be saying 'I can't but I'll print at line seven as it's the closest I can get'."

"What happens at the bottom of the page to the text that has been displaced like that?"

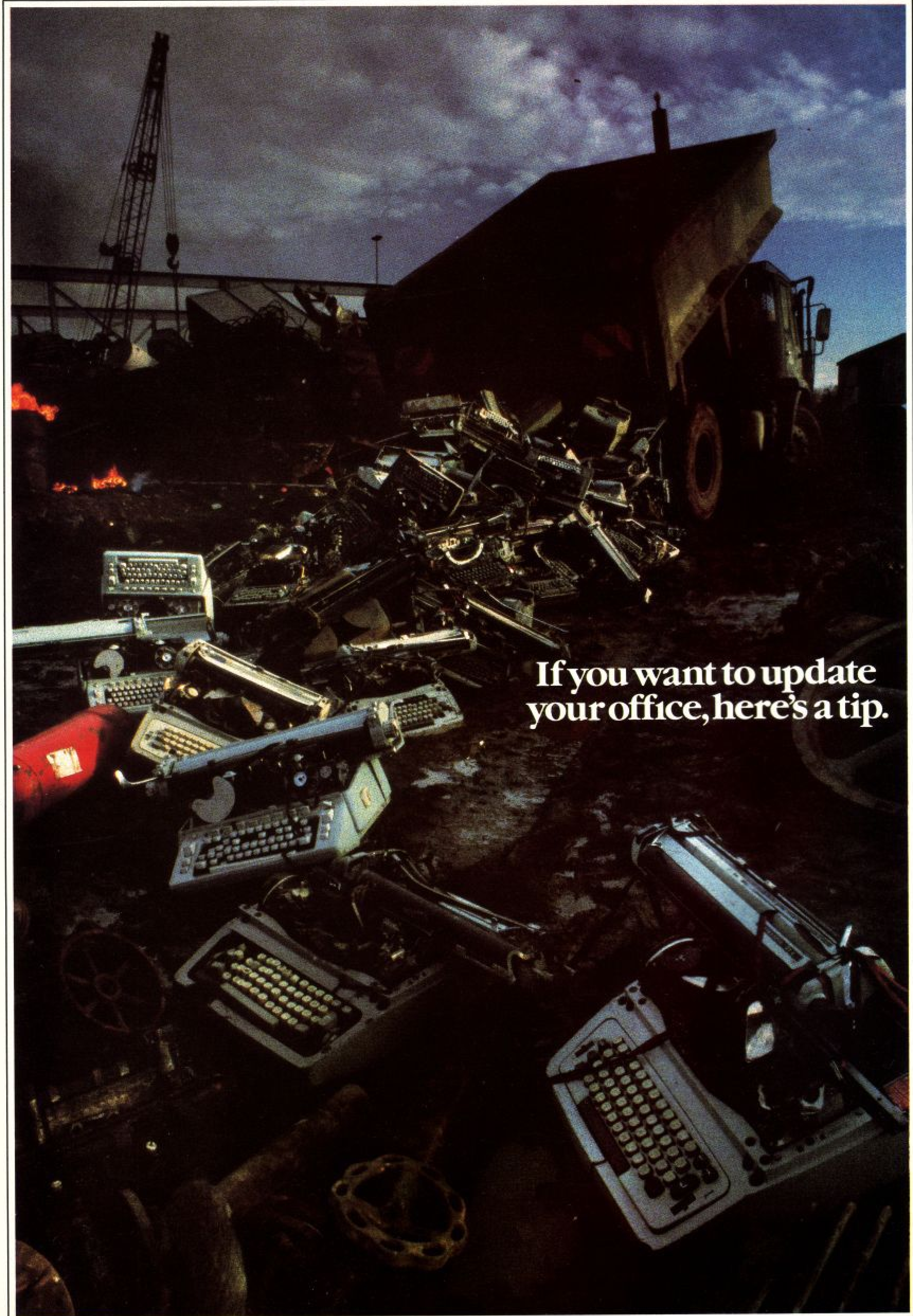
"Oh that's easy. The text pushed off the bottom appears at the top of the next page. Then the printer does a page throw to get to the top of the next page. So large gaps in the document are caused by a problem with headers and footers. If the page length has been set incorrectly the text will spill on to the next page. In a long document there's a knock-on effect where the text gets further and further from the top of the page".

Pete had finally grasped what Eddie was trying to explain. "Now I understand what you mean about the editor and the printer being separate. The printer has to have very clear information about the paper and it has to stick to printing on the paper where it can.

"The editor is flexible to some extent in the way it prints out headers and footers and handles the text but, it must be made to fit in with what the printer can do. You could say the printer was like a sausage machine churning out regular sized sausages. And the editor is like a mould for pressing the sausagemeat into".

"Talking of sausages", said Eddie, "we've just missed lunch".




If you want to update
your office, here's a tip.

The electric typewriter's days are numbered.

Because now there's a machine that puts real wordprocessing power within everyone's reach.

The Amstrad PCW 8256 is a complete word-processor and a powerful computer in one unit.

And its unbelievably low price includes a screen with built-in disc drive, keyboard, printer and word-processing software.

It's a complete wordprocessor

The PCW 8256 is totally equipped for word-processing. It has a high resolution screen with 90 columns and 32 lines of text.

That's 40% more usable display area than most PC's.

There's a high speed RAM disc that allows you to store and retrieve information instantaneously, as you're creating a document.

There's also an optional combined serial and parallel interface that gives you access to modem, additional printers and other peripherals. And you can even add an extra 1 M byte drive.

Training

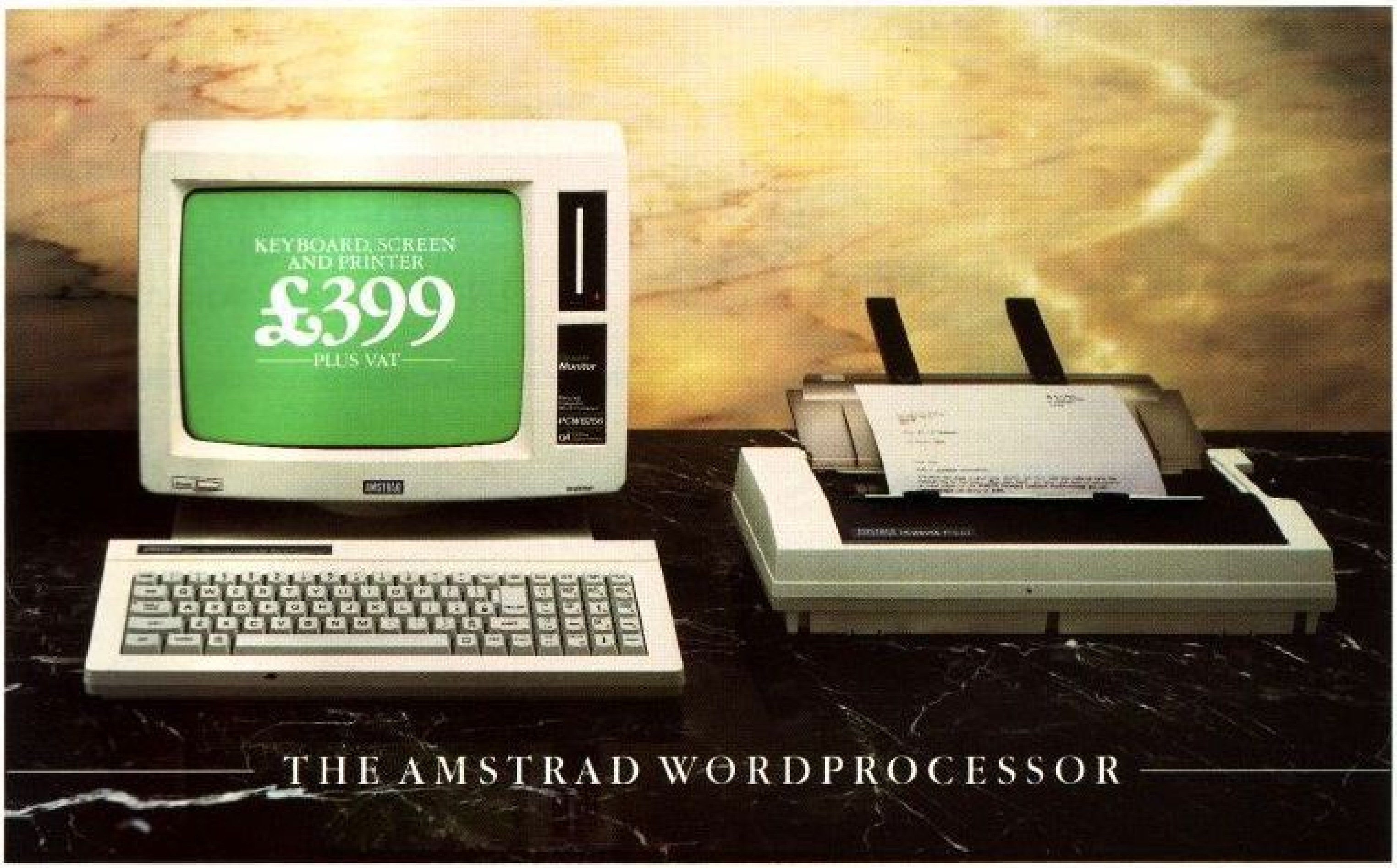
The PCW 8256 comes with a comprehensive user guide that tells you, in simple language, how to master its wordprocessing and computer capabilities.

But if you want to get to grips with it even quicker, there are now a great number of training courses available throughout the country.

On-site maintenance

Amstrad computers are exceptionally reliable.

But many business users find it reassuring to know that nationwide on-site service and maintenance contracts can be arranged.



The 82 key keyboard is specifically designed for wordprocessing. Its special function keys allow you to refer to 'pull down' menus as you work, so you don't have to memorise complicated codes.

And the PCW 8256 has an integrated printer with compatible software that gives you a choice of letter quality and high speed drafting capabilities.

Finally, there's an automatic paper load system, as well as tractor feed for continuous stationery.

It's a powerful computer

The PCW 8256 is also a purpose built computer with an enormous 256k memory.

For computer buffs, the Mallard basic, Dr Logo and GSX Graphics system extensions will mean you can write your own programs.

All of which puts the ordinary office typewriter firmly in its place.

The place featured on the opposite page.

Please send me some more information about the PCW 8256
Home user ☐ Office user ☐ (Please tick)

Name ______

Address ______

Tel: ______

Company ______

Amstrad PCW 8256

Amstrad, P.O. Box 462, Brentwood, Essex CM14 4EE.
Tel: (0277) 230222. ACU 5/86

METYCLEAN · OFFICE INTERNATIONAL · RONALD MARTIN · RYMANS · SANDHURST · THOMAS HILL · WILDINGS AND GOOD INDEPENDENT COMPUTER STORES.

ABC
PROGRAMMING

Boxing clever with GSX

GSX stands for Graphic System Extensions and provides a machine independent graphics interface for the CP/M family of languages. It seems to be a bit of a wallflower these days, overshadowed by its larger, more powerful big brother GSX II or GEM (Graphics Environment Manager) as it is known, which is only available for the 'sexier', horrendously expensive 16 bit stuff.

GSX is only an extension to CP/M and cannot survive independently from the CP/M environment. The interface to GSX from CP/M is via the BDOS function call 115.

At a simple level, to call a GSX command the C register of the Z80 chip is set to 115, the DE register pair points to the address of a five word (ten byte) parameter block and then the BDOS is then called in the usual way, as per the following snippet of assembler code (yes, you're quite right, it isn't simple at all).

```
GDOS    LD      C,115
;GSX call
        LD      DE,parblock
;address of parameter block
        CALL 5
;and call the BDOS
```

Ipp, ipp, array

The GSX parameter block is made up of five words, a word in this sense being two consecutive bytes, each of which contains the address of one of the following five arrays:

1: The Control (CONTRL) array, this contains the parameters to be passed/returned to the routine and is constructed as follows:

Before calling the routine:

Element 1: The GSX routine to call (for example 6 Draws a line).

Element 2: The number of vertices in the PTSIN array. Note that the number of vertices is actually half the size of the array PTSIN as the x and y coordinate each require one element in the array.

Element 4: The length of the INTIN array.

On return:

Element 3: The number of vertices in array PTSOUT (again half the number of actual elements).

Element 5: The length of the INTOUT array.

2: Integer input (INTIN) array, this contains the actual integer input parameters to be passed to the routine, for example the colour to use for drawing lines or the line style to use etc.

3: Input Points (PTSIN) array, this contains point coordinate data to be passed to the routine, for example the physical coordinates of a line on the screen in normalised device coordinates (NDC) in the range 0 to 32767.

4: Integer output (INTOUT) array, this contains output parameters returned from the routine.

5: Output points (PTSOUT) array, this contains point coordinate data returned from the routine.

Coordinates

All graphics coordinates are passed to GSX as NDCs which are in the range 0-32767 in both the X and Y axes. Put simply this means that the bottom left of the screen (device) has coordinates 0,0 and the top right has coordinates of 32767,32767.

GSX does the necessary arithmetic to calculate the ratio of NDCs to physical pixels on the currently selected device. Usually there is no need for the programmer to know this ratio, all devices have the same number of NDCs, so that all output will look the same, but there may be occasions when this information is needed and it can be readily obtained by inspecting the data returned in the arrays after opening a workstation, but more on that next month.

Get Set to eXperiment

To use GSX effectively you will need to understand what the following files do:

GSX.SYS
GENGRAF.COM
The device driver (*.PRL) files
ASSIGN.SYS

GSX.SYS is the machine independent part of GSX and must be on every disc you wish to use with GSX. Once a .COM file has been prepared to use GSX, this file will be loaded from disc every time the program is run.

GENGRAF.COM prepares a program for use with GSX by appending a loader program to it. It is this loader which automatically loads GSX.SYS every

time the program is run. Once your program has been prepared in this way GENGRAF.COM can be erased from your work disc.

The choice of device drivers remains with you. If you have a Joyce there is only one possible screen driver, DDSCREEN.PRL (720 × 256 pixels: 2 colours only), and a choice of two printers: DDFXLR8 (lo-res) and DDFXHR8 (hi-res).

6128 owners have a choice of three screen drivers, DDMODE0.PRL (160 × 200 pixels: eight colours (the computer could handle 16 colours but eight is the maximum allowed in GSX), DDMODE1.PRL (320 × 200 pixels: four colours) and DDMODE2.PRL (640 × 200 pixels: two colours), and a selection of printer and plotter drivers.

Once you have decided what device drivers you require, details should be put in the ASSIGN.SYS file. ASSIGN.SYS is an Ascii text file prepared with a text editor program, RPED for example, this file must contain the assignment numbers, disc drive code and name of the selected device driver.

Screen drivers can be allocated a number between 01 and 10.

Plotter drivers can be allocated numbers between 11 and 20, and printer drivers in the range 21 to 30. The disc drive code can be any legal drive or an @ character, which means the default drive, followed by a colon.

It is a GSX convention that the largest device driver be first in the list so that sufficient space can be allocated when the program is first run. Any text following the device driver name is ignored and just makes the file more readable. ASSIGN.SYS must be on a disc in the default drive when executing the GSX applications program.

Some example ASSIGN.SYS files are shown below:

For the 6128:

21 a:ddepson: Epson printer device driver
01 a:ddmodel: Four colour mode 1
02 a:ddmode2: Two colour mode 2

For the 8256:

21 @:ddfxhr8: Hi-res printer driver
01 @:ddscreen: Joyce screen driver (black and green only)

OK that's enough theory let's do something! This month's program is a very simple line drawing and text positioning exercise using Mallard Basic and GSX. Sorry to all the 6128 users, but if you're serious about programming in Basic, how come you haven't bought a copy yet? Perhaps we'll have something for you in the near future.

A point that I cannot stress too much is that you should copy all the required files on to a separate disc before you start messing about. The consumer electronics industry in general tends to regard with benevolence those wallies who accidentally erase their master discs, but in a cut-throat world this will not last forever. If you bought a dozen eggs from a supermarket, walked down the road, dropped and smashed the eggs would you expect the supermarket to replace them? Of course not, so protect your investment now.

Get DOWN shep!

For this month's Blue Peter project you will need the following files:

GENGRAF.COM
BASIC.COM
A suitable ASSIGN.SYS file

All the device driver files your ASSIGN.SYS refers to.

I'm assuming that you are already in CP/M and have your 'play' disc in the drive. Type GENGRAF BASIC and press Return. A copyright message is displayed and after a few seconds you are returned to the A> prompt, your version of Mallard Basic has now been GSXed.

Now load Basic in the usual way, then type in and save the GSXPREP program (Fig 1) and the BOXEDIN program (Fig 2). By this time you should know if your ASSIGN.SYS file was correct, if not, you won't have got this far!

While still in Basic type RUN"GSXPREP and when that is completed type RUN"BOXEDIN. After you have done this several times and cleared up all your tieypong mistookes you will see some boxes being drawn on the screen (Wow, as exciting as watching milk curdle). Take gasps of amazement from onlookers in your stride and I'll try to explain what's going on.

Into the bowels of a Mallard

The reason that Mallard and GSX hang together so nicely is because of the way

```
100 'GSXPREP.BAS
110 '
120 'Courtesy of Locomotive Software
130 '
140 gsx%=&H30
150 POKE gsx%+0,&H50 'ld d,b      ;copy B
    C to DE
160 POKE gsx%+1,&H59 'ld e,c
170 POKE gsx%+2,&HE  'ld c,115    ;GSX fu
    nction call
180 POKE gsx%+3,115
190 POKE gsx%+4,&HC3 'jp &h0005  ;Jump t
    o the BDOS
200 POKE gsx%+5,&H5
210 POKE gsx%+6,&H0
220 NEW
```

Figure 1

```
100 'BOXEDIN.BAS
110 '
120 'Courtesy Locomotive Software
130 '
200 GOSUB 60030: GOSUB 60130 'Initialise
     GSX and open workstation
210 '
220 FOR a=0 TO 10000 STEP 1000 'draw som
    e boxes
230   llx=a: lly=a: trx=32767-a: try=327
    67-a
240   GOSUB 50030
250 NEXT a
260 '
300 llx=16000: lly=16000: mesg$="Wow!":
    GOSUB 50130 'print some text
310 '
320 WHILE INKEY$="" : WEND  'Wait for a
    key press
49998 '
49999 GOSUB 60200: END 'Close workstatio
      n and end
50000 '
50010 'Draw a bar (GSX opcode 11)
50020 '
50030 contrl%(1)=11: contrl%(2)=2: contr
      l%(6)=1
50040 ptsin%(1)=llx: ptsin%(2)=lly: ptsi
      n%(3)=trx: ptsin%(4)=try
50050 GOSUB 61030: RETURN
50100 '
50110 'write text at specified position
      (GSX opcode 8)
50120 '
50130 contrl%(1)=8: contrl%(2)=1: contrl
      %(4)=LEN(mesg$)
50140 ptsin%(1)=llx: ptsin%(2)=lly
50150 FOR a=1 TO LEN(mesg$)
50160   intin%(a)=ASC(MID$(mesg$,a,1)) '
      put message characters into intin
      array
50170 NEXT a
50180 GOSUB 61030: RETURN
60000 '
60010 ' Define arrays and address of "ju
      mp" to GSX
60020 '
60030 gsx%=&H30
60040 DIM contrl%(6),ptsin%(64),ptsout%(
      12),intin%(64),intout%(45)
60050 RETURN
60100 '
60110 ' open workstation: (GSX opcode 1)
60120 '
60130 contrl%(1)=1: contrl%(2)=0: contrl
      %(4)=10
60140 RESTORE 60160: FOR i=1 TO 10: READ
       intin%(i): NEXT
60150 GOTO 61030
60160 DATA 1,1,1,1,1,1,1,0,1,1
60200 '
60210 'close workstation: (GSX opcode 2)
60220 '
60230 contrl%(1)=2: contrl%(2)=0: contrl
      %(4)=0: GOTO 61030
61000 '
61010 'Actual call of GSX
61020 '
61030 CALL gsx%(gsx%,gsx%,contrl%(1),int
      in%(1),ptsin%(1),intout%(1),ptsout
      %(1))
61040 RETURN
61100 '
61110 'Call of GSX with one INTIN parame
      ter only
61120 '
61130 contrl%(2)=0: contrl%(4)=1: GOTO 6
      1030
65534 GOSUB 60200
```

Figure 2

Mallard handles parameters while calling routines in memory. If there are four or more parameters the first is passed in HL, the second in DE, and BC contains the address of an area of memory containing the addresses of the rest of the parameters which is just what GSX wants, a parameter block containing the addresses of the five arrays. Pure magic!

All that has to be done is to move the parameter block from BC, where Mallard stores it, to DE, which is where GSX expects it to be. Load C with the GSX BDOS number and call the BDOS. This is the function of the preparatory program GSXPREP which pokes the required seven bytes of machine code into memory at address 30 hex to await the CALL from the main program.

Eternal thanks to the guys (guys being a neuter non-sexist term) at Locomotive Software who brought this piece of magic to our attention.

As we only want to use the parameter block that is stored in BC the first two parameters passed with the CALL in line 61030 are dummies, but don't leave them out otherwise strange things could happen!

The main program

The program BOXEDIN.BAS is split into three main areas: The lines 60000 – contains all the code to set up the integer arrays required, open and close workstations and perform all the magic described above respectively.

Subroutine 60100 opens the workstation. To do this 10 parameters are passed in the INTIN% array, (yes 10, don't laugh it returns 57! but more about that next month). The 10 parameters are in a DATA statement to make them easy to modify, and are:

1: The workstation identifier, that is the number assigned to the device driver in the ASSIGN.SYS file. If you have assigned a printer driver in ASSIGN.SYS, entering the number here will divert output to the printer, just like that.
2: The line type for drawing polylines, solid, dashed, dotted and dashed etc.
3: The polyline colour index (sorry Joyce, only one for you).
4: The polymarker type, there are five different markers.
5: The polymarker colour index.
6: The text font (sorry, not supported).
7: The text colour index, for text naturally.
8: The fill interior style, there are four possibilities: Hollow, Solid, Dot pattern and Hatched fills (only on the printer with the Amstrad supplied drivers).
9: The fill style index, there are six dot and hatch patterns (only on the printer with the Amstrad supplied drivers).
10: The fill style colour (sorry, not for you).

The lines 50000-59999 will contain any subroutines which we will write to send GSX commands. There are two here one to draw a box (always with a solid line) and one to draw text on the screen at any given coordinate in GDPs. We will add some more next month.

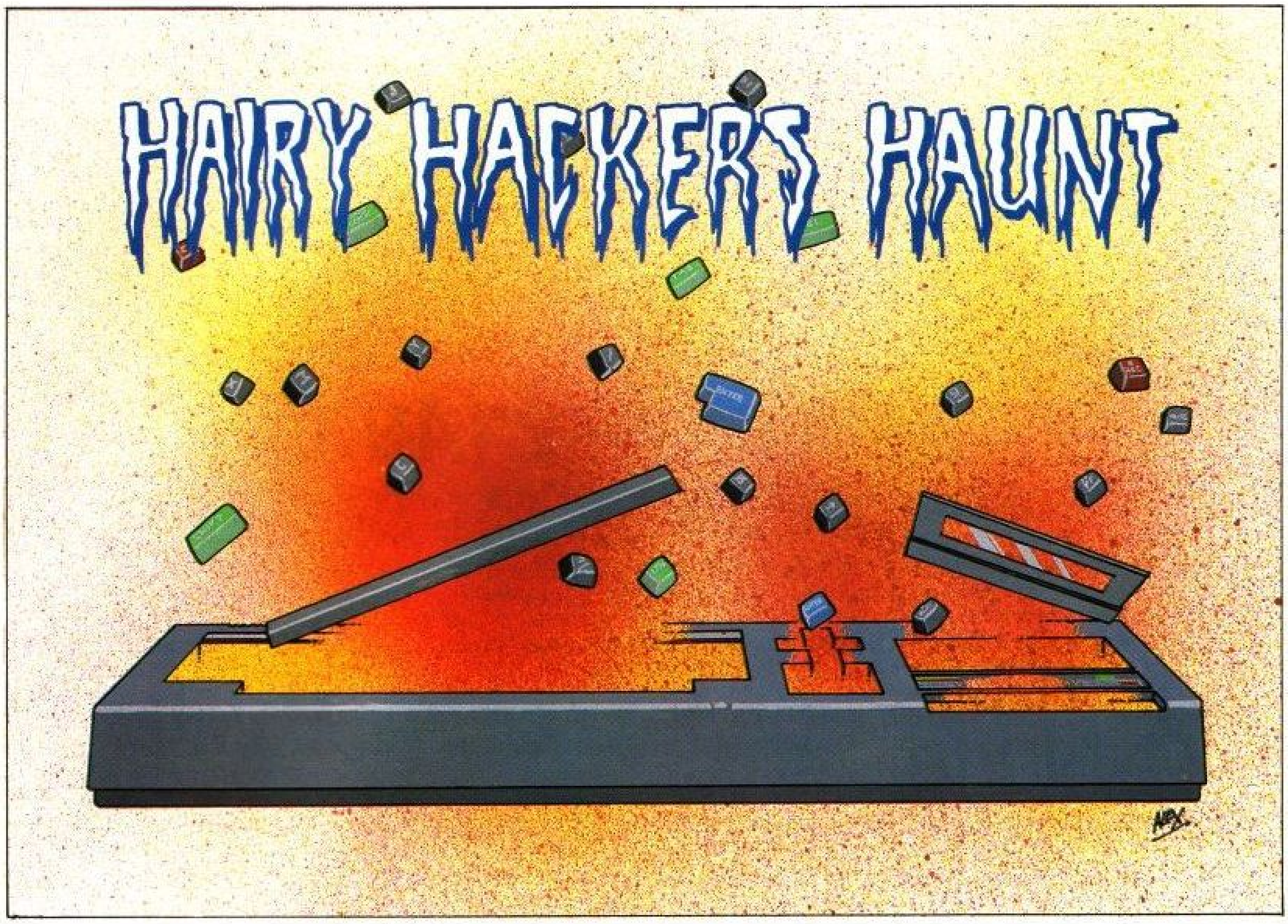
The lines 100-310 contain the guts of the code, a simple loop to draw eleven boxes, and a one-liner to print the text approximately in the centre of the screen, followed by a simple wait-for-a-keypress loop so that your masterpiece doesn't disappear the second it's finished drawing.

The variables are vaguely mnemonic: llx = lower left x co-ord, lly = lower left y co-ord, trx = top right x co-ord, and try = top right y co-ord and mesg$ is just a text message.

That's all for now, next month we will define the rest of the GSX opcodes and how to use them, another Mallard program using the same structure we have defined in BOXEDIN, and in the near future perhaps some assembler for those poor souls who don't have Mallard.

ABC

ABC ADVERTISERS INDEX



Hello, welcome to the new column. This helpful little page hopes to give the more extrovert user a deeper insight into life, the universe, and his Amstrad micro.

It's also a cheats column, 'cos we'll give you infinite lives pokes. If you don't cheat I envy your virtuosity. If you do then let us have your pokes so that we can share them. Anyone caught lifting pokes from other magazines will be sent to suffer a fate worse than 3D invaders.

This month I'm going to tackle the odd poke or three, and deal with the Amstrad JY-2 joystick with a pair of pliers.

In a spin

First, yer pokes. The first this month is for Spindizzy, a great game – sort of a cross between Marble Madness and Knight Lore. Puzzle that one out if you've got some spare time. Anyway, the poke for infinite time is as shown in Listing 1.

Just run this program, then run theirs (without resetting the machine). Hawkwind fans (yeah!) will note that the programmers have made a built-in poker. The bytes after HAWKWIND are an address followed by the bytes you want to put there.

In this example the time leaps about a bit but never gets down to zero. Maybe British Rail uses this to generate their timetables?

Hawkwind fans of the nth degree will easily spot a sequence of screens in the shape of the letters HAWKWIND in there.

While I'm ranting about Spindizzy, 'I' changes the little pyramid character and if you hit the F and X keys while reading the instructions you go into a strange bit. Poke keys and find out what the heck is going on. Examination of source code reveals a message telling you how to get into this state when you complete the game.

```
1 REM Complements to Dave Radisic
10 h$="HAWKWIND":a=&BF00:n=1
20 POKE a+n-1,ASC(MID$(h$,n))
30 n=n+1:IF n<=LEN(h$) THEN 20
40 addr=a+LEN(h$)
50 '
60 READ lb,hb,by:IF hb=0 THEN 200
70 POKE addr,lb:POKE addr+1,hb:POKE addr
   +2,by
80 addr=addr+3:GOTO 60
90 '
100 DATA &67,&a8,&c9
110 DATA &31,&a8,&21
120 DATA &32,&a8,&55
130 DATA &33,&a8,&05
140 DATA &ee,&bd,&c3
150 DATA 0,0,0
160 '
200 MODE 1:?"Now run their bit as usual"
```

Listing 1

Undeadly knightshade

Knightshade keeps a few people up till three am sometimes, so here's a poke to keep you on your feet.

Listing 2 shows the substitute loader – only put in the lines concerned with the bit you want to use.

```
10 MODE 1:BORDER 0:INK 0,0:INK 1,6:INK 2
   ,24:INK 3,15
20 MEMORY &12FF:LOAD"!NPIC",&1300:CALL &
   1300:LOAD"!",&1300
30 POKE &8FCC,201:'                    In
   vulnerable to normal monsters or
40 FOR N=&8FCC TO &8FD7:READ A:POKE N,A:
   NEXT N:'      Same as before, but
50 DATA 17,0,8,205,119,147,254,251,192,1
   95,139,124:' hold down ESC to
60 '   abandon when hit.
70 POKE &8FD0,201:' Invulnerable to norm
   al monsters, but you kill them.
80 '
90 POKE &7C34,114:POKE &8CEB,163:POKE &8
   CEC,182:POKE &8CED,119:'Inf lives
100 '
110 POKE &98A5,0:POKE &9C3B,24:' Anythin
    g makes you move faster.
120 CALL &1300:' This runs the hacked co
    de.
```

Listing 2

Real Correspondence Quality Printer

PRICE BREAKTHROUGH

QUENDATA DWP 1120 DAISYWHEEL PRINTER

A HOST OF USEFUL FEATURES INCLUDE:

- Standard parallel/centronics interface
- 20 c.p.s. (approx 200 words/minute)
- Easily obtained Qume ribbons
- Uses Qume daisywheels (many typefaces available)
- 10, 12 and 15 pitch options
- Maximum paper width 13 inches
- 4 levels of hammer impression
- Comes complete with power lead, plug, ribbon, courier 10 wheel, manual and cover
- Tractor and cut sheet feeder available

TRADE PRICE £178.25 INC. VAT. REC. RETAIL PRICE £299.00

OUR PRICE £199. NOW £149.00

AMSTRAD PRINTER LEAD IF ORDERED WITH PRINTER JUST **£9.95.**
IDEAL FOR 464, 664, 6128, WORD PROCESSING.

TELEPHONE **01-446 7170** or **01-952 0451.** ACCESS OR BARCLAY CARD WELCOME
DELIVERY **£12.50,** (mainland UK) or collect from our two stores

Adams World

779 High Road, North Finchley, London N12 8JY. (By Tally Ho)
Or 190c Station Road, Edgware, Middlesex (By Edgware Tube)

AMSTRAD

NEW CROWN COMPUTERS LTD.

AMSTRAD

SPECIAL OFFERS FOR THIS MONTH

AMSTRAD HARDWARE

PCW8256	£435.90
PCW 8512	T.B.A.
CPC6128 colour	£379.95
CPC6128 green	£284.95
CPC464 colour	£284.95
CPC 464 green	£189.95
DD1-1 Disc Drive	£151.95
FD-1 Disc Drive	£94.95
FD-2 Disc Drive	£151.95
MP-2 Modulator	£28.45
JY-2 Joystick	£13.25
3" Disc (box 10)	£42.75
C15 Data Cassettes	£5.00
DMP2000	£151.95
Printer Lead	£10.40
Cassette Lead	£4.04
Extension Cable	£9.45
DL2 Disk Drive Lead	£5.23
Data Recorder	£28.45
Data Recorder (DR101)	£33.20
Electric Studio Light Pen	£18.95
LP-1 Light Pen	£18.95
SSA-1 Speech Synth	£28.45
RS232 for 464, 6128	£47.45
RS232 for 8256	£56.05

50% OFF SOFTWARE
While stocks last

Alien Break In	£4.00
Atom Smasher	£4.00
Android One	£4.00
Admiral Graf Spee	£4.00
Artwork	£4.00
Argo Navis	£4.00
Binky	£4.00
Bridge It	£3.00
Braxx Bluff	£4.00
Blagger	£4.00
Confusion	£4.00
Caverns of Mars	£4.00
Cheops	£4.00
CP Graph	£6.00
Dragons Gold	£4.00
Dragons	£4.00
Don't Panic	£1.50
Dynamite Dan	£4.00
Dark Star	£4.00
Dragontorc	£4.00
Digger Barns	£3.50
Everyones A Wally	£4.00
Esy Writer	£4.50
Electro Freddy	£4.00
Fantstic Voyage	£4.00
Fu Kung In Las Vegas	£4.00
Fighting Warrior	£4.00
Fantasia Diamond	£4.00
Genesis	£4.50
Glen Hoddle Soccer	£4.00
Geoff Capes Strongman	£4.00
Gems of Stradus	£4.00
Galactic Plague	£4.00
Ghouls	£3.50
Gyroscope	£4.00
Grand Prix Rally II	£4.00
Ghostbusters	£4.50
Hunchback II	£4.00
Hard Hat Mack	£4.00
Hold Fast	£3.50
Home Runner	£4.00
Jet Boot Jack	£4.00
Jammin	£4.00
Jewels of Babylon	£3.00
Jump Jet	£4.00
Juggernaut	£4.00
Knight Lore	£4.00
Lords of Midnight	£4.50
Lords of Time	£4.00
Laserwarp	£4.00
Master of the Lamp	£4.50
Match Day	£4.50
Mind Shadow	£4.50
Mutant Monty	£4.00
Mr Wongs Loopy Laundry	£4.00
Millionaire	£4.00
Mystery of Java Star	£4.00
Manic Miner	£4.00
North Sea Bullion Adventure	£2.00
Night Shades	£4.50
On the Run	£4.00
Quack-A-Jack	£4.00
Obsidian	£3.00
Pyjamarama	£4.00
Pinball Wizard	£4.00
Paws	£3.00
Punchy	£4.00
Project Future	£4.00
Roland on the Run	£4.00
Roland in the Caves	£4.00
Rock Raid	£3.00
Renegade	£3.00
Red Coats	£3.00
Rollaball	£3.00
Red Arrows	£4.50
Rocky Horror Show	£3.50
Rocco	£4.00
Robin of Sherwood	£4.00
Snowball	£5.00
Stock Market Speculator	£6.00
Sultans Maze	£2.00
Smugglers Cove	£2.00
Survivor	£3.50
Software Star	£3.50
Satellite Warrior	£4.00
Shadow of the Bear	£2.00
Sir Lancelot	£3.00
Slapshot	£4.00
Royal Quest	£3.00
Tales of Arabian Nights	£4.00
Tomb of Kuslak	£3.50
Devils Crown	£4.00
The Key Factor	£4.00
The Scout Steps Out	£4.00
The Prize	£4.00
The Never Ending Story	£4.50
Warlord	£4.00
World Cup	£3.50
Wizard Lair	£4.00
Vagan Attack	£4.00

SPECIAL OFFER
Up to £50 Trade in on your old computer when you buy a new Amstrad from us. Please ring for details.

REPAIR SERVICE
464, 664, 6128 keyboard £35
We give 3 months warranty on all repairs.
We also repair Spectrum, CBM 64, BBC, Disc drives and printers.

All prices include Postage in UK only. Prices valid while stocks last. Overseas customers please add 50p per tape for Europe and £1.00 per tape for rest of the world. Overseas hardware prices on request.

Please send S.A.E. for latest catalogue.

MAIL ORDER
Please make Cheques & Postal Orders Payable to:

NEWCROWN COMPUTERS LTD.
98/100 HIGH TOWN ROAD,
LUTON, BEDS LU2 03P
Tel: (0582) 455684

Overseas trade & mail order enquiries welcome.

Access VISA

Logo

Now for something completely different © 1975 Monty Python. Miscreants tinkering with Logo keep on asking "Why does setpos x: y: not work?" The answer is that unless told otherwise Logo will assume that it is x that contains a list of coordinates. So, to let Logo know that x: y: is really the list that you mean, you use the list command thus:

```
setpos (list x: y:)
```

Now please stop bothering us about it!

Unfair to joysticks

Ever since the editor dropped the first prototype JY-2 on the floor I have been puzzled why you have two switches and only one real fire button? Surely there was a way to give two fire buttons. Well, while bored and laid low with flu, I perfected the following gem:

Take your joystick firmly by the throat, raise your other hand containing a cross-head screwdriver and say the following words: "I realise that I am about to wreak irrevocable havoc on an Amstrad joystick, which will kick my guarantee for it out of the window. Further, I will not come running to *Amstrad User* if I muck it up".

Having said this, lower the screwdriver and read this article thoroughly. Why else do I write? OK, so the money comes in handy...

Firstly, I discovered the Amstrad joystick lacked the wire necessary for another button to hang on to, so we're gonna make one. Take a length of insulated, stranded wire about a millimetre or two in diameter and tape it to the plug with about an inch overhang.

Strip the ends with teeth or cutters and bung one stripped bit in the big hole in the short row of holes on your joystick plug from the front – actually, it's a socket due to the holes in it, but take all references to plug or socket to mean the bit dangling on the joystick lead. No opening of sealed plugs required, so that's the easy bit.

Raise the screwdriver and undo all four screws in the bottom of the joystick. If you don't get them all you won't get much further. Now pull the top bit gently away from the bottom bit and put the screws somewhere safe.

Next step is to undo the screws in the handle of the joystick, some have three, some have two. Separate halves and stash your screws (they're all the same size, so put them in the ashtray with the other ones).

You now have a lot of wires, circuit boards and funny bits of plastic all over the place don't you? Good. Pick up the red fire buttons that just fell out of the joystick handle and put them in with your screw collection. While you're tidying up wrap the wire around the joystick lead a bit.

Now comes the tricky bit – the two wires leading to the top switch – which we want to turn into a separate fire button, are not colour coded. Plug the modified plug into the back of the computer. Turn on and brush the free bared end of your wire across the solder blobs on the little bit of circuit board the switch sits on. One of these blobs will produce a Z. This is the common wire – you don't want to disconnect it.

Turn off again and cut the white wire connected to the other blob half way down. Strip the insulation off the bit connected to the switch and pass the length of wire that you have added along the same path as the two black wires that go up the joystick handle.

Twist your wire around the stripped wire and, if you can, solder it. Wrap the joint in some form of insulating tape or it might fire more often than you thought it would.

Assemble the whole thing again with your added wire coming out of the same hole as the normal lead.

That's it – now you can play games such as Tank Busters and Tau Ceti, which allow you to redefine the keys using one fire button for shell and one for missiles. Alternatively the following pokes convert Harrier Attack to work with one button for rockets and one for bombs. Keen hackers can modify other programs to suit.

```
10 OPENOUT "!D":MEMORY 10000:CLOSEOUT
```

For disc:

```
20 LOAD"HARRIERC"
```

For tape, wind past first block and use this line 20 instead:

```
20 LOAD"!"
30 POKE &815B,77:CALL &8111
```

If anyone actually finds this mod useful then please write in so I know to publish two fire button pokes in future columns.

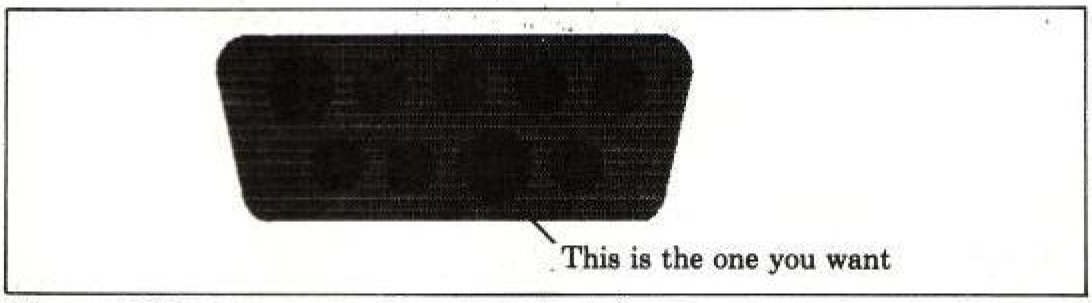


Figure 1: JY-2 plug as seen from the holes end

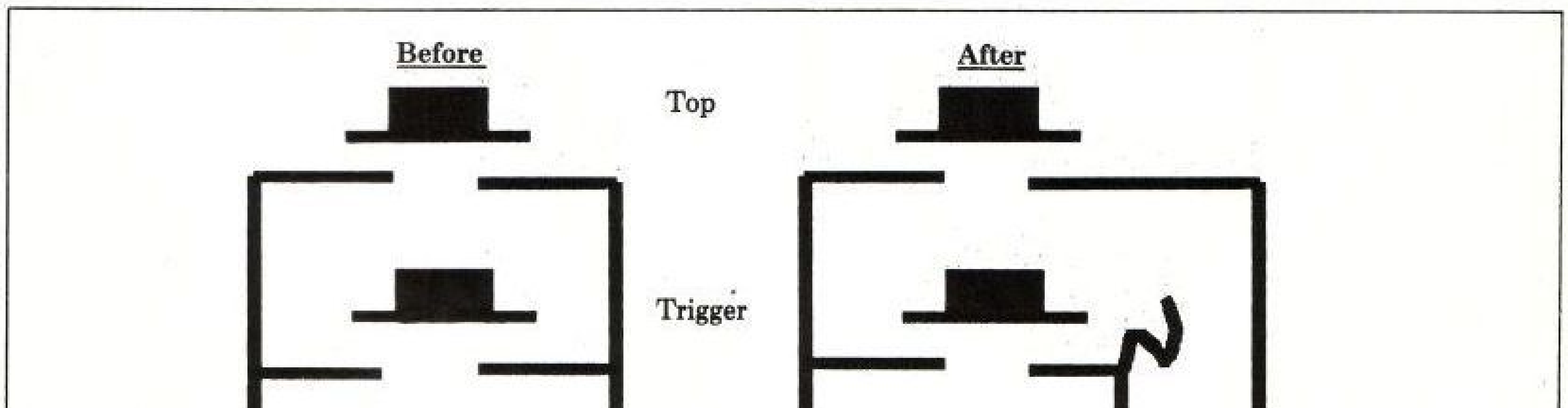
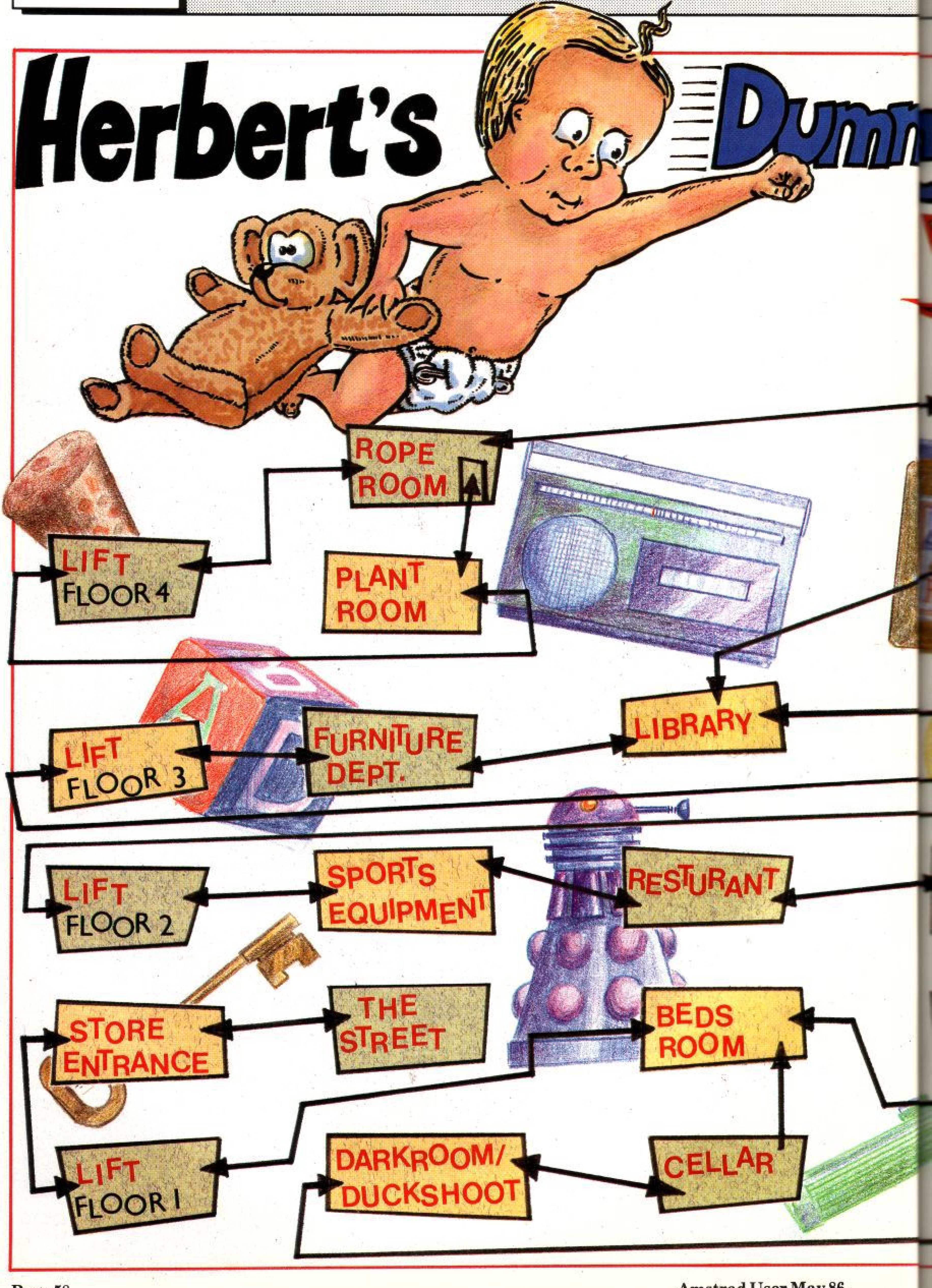
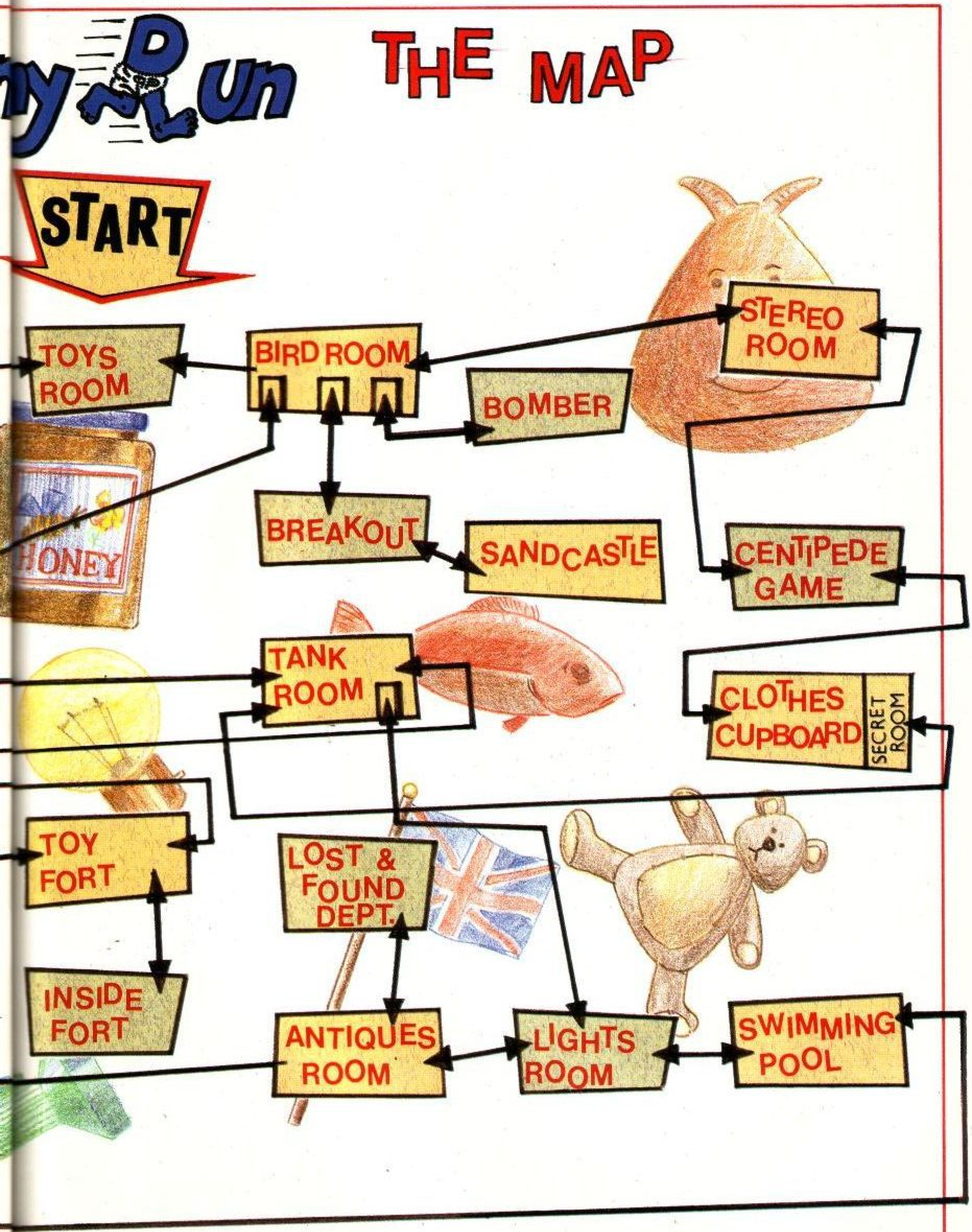


Figure 2: Before and after

Herbert's Dumm





THE MAP
START
TOYS ROOM
BIRD ROOM
STEREO ROOM
BOMBER
BREAKOUT
SANDCASTLE
CENTIPEDE GAME
HONEY
TANK ROOM
CLOTHES CUPBOARD
SECRET ROOM
TOY FORT
LOST & FOUND DEPT.
INSIDE FORT
ANTIQUES ROOM
LIGHTS ROOM
SWIMMING POOL

Kuma

Serious software on Disc and Cassette for the Amstrad CPC464, 664, 6128 microcomputers.

DATAFILE II

The powerful, user friendly Database.
Disc £19.95 Cassette £14.95

- ★ Menu driven – easy to use
- ★ 20, 40 or 80 characters per line
- ★ Variable file and field size
- ★ High speed search, sort and find options
- ★ Label, Summary and dump print options
- ★ HELP menu available at all times

STOCK CONTROL and INVOICING

Disc £29.95

- ★ 1000 records on single disc (1500 on double)
- ★ Linked invoicing facility
- ★ Re-order, stock and stock value reports
- ★ Buying and selling price lists
- ★ Current stock level and value

MUSIC MINSTREL

High quality Music Composition program.
Disc £19.95 Cassette £14.95

- ★ Menu driven – easy to use
- ★ 150 pages of music with 16 chords per page
- ★ Musical features include slurs, crescendos and accelerandos
- ★ Keys can be changed during the course of a musical piece

Kuma FORTH

A comprehensive implementation of FIG FORTH with many added features.
Disc £24.95 Cassette £19.95

- ★ Floating point
- ★ Genuine cursor controlled Screen Editor
- ★ Virtual memory system for both tape and disc versions
- ★ Support for RS232 interfaces
- ★ Colour Graphics and Sound ★ Function key support

ARTWORK

An easy-to-use but powerful Graphics design package.
Disc £16.95 Cassette £9.95

- ★ Line, Box, Circle and Ellipse routine
- ★ Screen may be scrolled in any direction
- ★ Useful HELP option available at any time
- ★ Fast fill option ★ Text mode for diagram labels

BRIDGE

A challenging version of Contract Bridge.
Disc £13.95 Cassette £8.95

- ★ Stayman and Blackwood conventions
- ★ Helpful screen layout and prompts
- ★ Single key operation for highest and lowest
- ★ Fast reaction time – no annoying pauses in play

HERCULE

Exceptionally friendly O-level French teaching program.
Cassette only £8.95

- ★ 500 word and phrase vocabulary for translation
- ★ Automatic random retest for wrong answers
- ★ Exceptionally user friendly
- ★ An invaluable revision aid for all O-level students

ARGO NAVIS

Disc £12.95 Cassette £6.95

Your spaceship has been overrun by aliens and your only hope of survival is to collect and set the twelve self-destruct bombs deep in the heart of the vessel, return to the airlock and escape to safety. Sounds easy, doesn't it? – but beware – this exciting, addictive, multi-scenario game abounds with hidden dangers both inside and outside the ship!

RENEGADE

Disc £12.95 Cassette £6.95

You must negotiate your way through a large, heavily guarded maze to steal a priceless jewel, hidden on the tenth level. Having reached this crystal you must fight your way back out of the maze to ensure your ultimate revenge. A superb multi-level, addictive game with lots of devious surprises!

CREDIT CARD HOTLINE 07357 4335

Please send me:

	Disc	Cass.	Qty	Total
DATAFILE II				
STOCK CONTROL				
MUSIC MINSTREL				
BRIDGE				
ARTWORK				
Kuma FORTH				
HERCULE				
ARGO NAVIS				
RENEGADE				
TOTAL PAYABLE				

Send to: Kuma Computers Ltd, 12, Horseshoe Park, PANGBOURNE, Berks RG8 7JW

Name ....

Address ....

(to agree ....

with credit ....

card account) .... Post code ....

Cheque enclosed for £ .... Or charge my

ACCESS/BARCLAYCARD A/c. [ ]

Signed .... Expiry date of card ....

Starlight Express

Halley's Comet was one of the fastest things in the night sky earlier this year, so Firebird, the rising star of software houses, is offering a telescope for the luckiest and brightest readers to announce their great new game.

Are you all starry eyed? Do you gaze into the night sky noting the brightest stars? If so then this competition is for you. BT have released a game called Comet, based on the regular visits of Halley's comet. (The only Comet which doesn't sell Amstrads). You have to save the Earth by penetrating the very core of the comet, its ice-cold heart.

Anyone who watched the real thing on telly will know that this is a very dangerous mission. The real probe was unmanned but your comet has a pilot and you have the hardest job of all – running the ship's computer.

Looking after the life support system is not an easy task. You need to look after the particularly awkward coffee machine, and make sure that the pilot doesn't drink too much.

Not all the hazards are extra-terrestial – the solar system has its own asteroid defence system which mistakenly decides that you are a danger and attacks you.

To get to the comet you have to win 20 games chosen from five different types of blast-em-up missions. Once you have reached the comet's core you skim the surface and have to shoot the deadly germ bags. Completing the game is not an easy task, but then saving a whole planet is never easy. Your reward is a spectacular message of congratulations.

What can you win?

The ideal thing for looking at comets is a small telescope and that is what Firebird are giving you the chance to win. You will have missed the comet this time around but if you wait a mere 76 years you should be well prepared for its return. In the meantime you can use the telescope to explore the stars.

The powerful telescope offers magnification of 15 times, 30 times and 45 times that of unaided sight. It is highly suitable for stargazing and will enable you to explore the vast night sky from your room or garden.

For the 20 runners up there will be a Silver game of their choice.

How to win

Look at the contest entry form. There are five quotes from this month's magazine and all you have to do is examine the rest of the magazine and find where the original can be found.

Write the page numbers for the quotes in the boxes down the left hand side. When you have found all the pages add up the numbers and put the total in the box.

Rules

1. The winner will be the first correct entry drawn on Thursday, May 29, 1986.
2. You may photocopy this entry form but only one entry per reader is allowed.
3. Entries shoud be sent to:
   Comet Competition,
   Amstrad Computer User,
   169 Kings Road,
   Brentwood,
   Essex,
   CM14 4EF.
4. The judges' decision is final. No employees of Amsoft, Amstrad User or their relatives or friends can enter.

Entry form

Quotes	Page number
Examination of the source code	☐
Three subscripts to store the coordinates	☐
You require the laser pass	☐
Your faithful robotic friend Komputa	☐
The PCW 8512 has surprised very few	☐
Total	☐

Runners-up prize (first and second choices), please mark your choices with a 1 and 2.

- ☐ Chimera
- ☐ Don't Panic
- ☐ The Wild Bunch (464 only)
- ☐ Mr Freeze (464 only)
- ☐ Willow Pattern
- ☐ Thunderbirds

Name ______________________

Address ______________________

____

____

SOFTWARE FOR THE AMSTRAD

ULTRABASE

General Purpose Database

Ultrabase is a general purpose file management package allowing large amounts of information to be stored and processed. It is extremely powerful yet flexible & easy to use.

Once set up, the information may be retrieved, sorted on any field, displayed, updated, printed etc as required.

It is ideal for use in the home, school or office and is supplied with a comprehensive manual.

- Menu driven & easy to use
- Up to 15 fields per record
- Up to 25 characters per field
- Any number of files may be created
- Each file may typically hold up to 400 records (based on a 5 field record)
- More than 25K of memory for data storage
- Special label printing facility.



TAPE
£14.95 INC. VAT

DISC
£17.95 INC. VAT

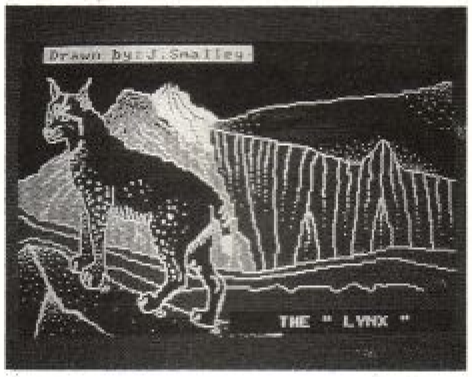
REMBRANDT

Icon Driven Drawing Package

Rembrandt is an exciting new 16 colour painting and design package. It allows you to create amazing screens on the Amstrad computer using some very advanced features.

All options are selected from an on-screen icon menu and are extremely easy to use. This must be the ultimate drawing package for the Amstrad.

- Icon controlled
- Draw in any screen mode in any colour
- Circles, squares, rectangles, polygons etc
- Preview before fixing to screen
- Very fast fill & stipple fill
- Load/save screens to tape/disc
- Text anywhere
- Special magnify facility
- Cut and paste
- Scroll screen up, down or sideways
- Keyboard or joystick controlled
- Printer dumps for DMP-1 and Epson compatibles



TAPE
£13.95 INC. VAT

DISC
£16.95 INC. VAT

LOCKSMITH

Unlock the secrets of your Tapes and Discs

Just the one program for all systems

Locksmith will make back-up copies of your favourite programs on disc or tape. It is ideal for tape users who are upgrading to a disc system and want to transfer their programs onto disc. It will give you full information about what is happening and help you to understand about protection and disc/tape headers etc.

TAPE to TAPE Handles large Basic programs, headerless files and different loading speeds

TAPE to DISC Transfer whole tape or selected files

DISC to DISC Backup of whole disc or selected files. Change program name option

DISC to TAPE Whole disc or individual files

LOAD PROTECTED BASIC PROGRAMS

ASCII TRANSFER

READ TAPE/DISC HEADERS Displays Block no, Start address, File type, Length, End address etc

RELOCATOR

ON-SCREEN HELP



TAPE
£13.95 INC. VAT

DISC
£16.95 INC. VAT

ROM
£29.95 INC. VAT

DISC DEMON

The essential tool for Disc owners

Disc Demon provides over 25 new commands for the disc user. It will save you time, help you to understand about discs and get you out of trouble.

• Learn about how files are stored on disc • Understand disc protection • Recover "erased" files • A whole host of new commands • No more "messing around" with your CP/M disc

DISC EDITOR Full screen editor to examine or alter any part of your disc

MEMORY EDITOR Examine & alter memory in Hex or Ascii

SECTOR SEARCH Locate & edit any string on your disc

RECOVER Recover "erased" files

FORMAT/VERIFY A very speedy format & verify

BACKUP Complete disc backup

ACCESS Lock/unlock your files

WIPE Selectively delete files

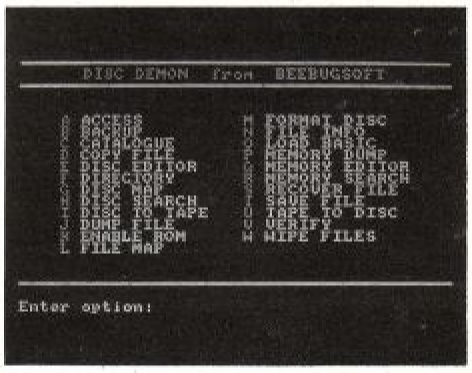
DISC MAP Display disc usage info.

TAPE to DISC TRANSFER Copy your tape programs to disc

INFO Full details of all files

COPY Copy files from disc to disc

AND MUCH MUCH MORE



DISC
£17.95 INC. VAT

ROM
£29.95 INC. VAT

OOPS!

Amstrad Computer Loser ...



Bugs. A four letter word whatever language you program in. They struck *ACU* quite badly last month so to save on the tearing of hair and gnashing of teeth here is what went wrong.

Add character to your Joyce

The last thing we wanted to do with a PCW 8256 programming article was make it more complicated. Sure enough the last thing we did to this programming article was make it more complicated.

We managed to run the two listings together as listing 1, and then invent a new bit for listing 2.

To set the record straight here is how to lose the serifs on your Joyce.

Look at listing 1 – Redefine.asm. This should end at the "end" statement near the bottom of the first column (just before where it says fred).

The rest of the listing is Doit.asm – listing 2. You can be sure that this works – one bright reader figured out our mistake and sent in a dump of a san serif face.

Animator

This article was savaged by Liz Ting's wicked uncle Arthur Program. The other half of the program got left behind.

Only listing 1 was affected but this meant that the rest of the programs could not be used. Type this in and all should be OK.

There are a few points which are worth adding to last month's article to make it a bit clearer.

A loop to give a delay between frames can be inserted like this:

...:CALL 14993:FOR Z=0 TO 300: NEXT Z:CALL 15000:...

You can put the same loop between the call instructions in listing 4 to give a delay of about half a second.

Cartoon reproduced from "Warning – This Computer Bytes!" published by Javelin

```
10 'Program 1.
20 'ANIMATOR CODE GENERATOR
30 'BY CHRIS WOOD FOR ACU 4/2/85
40 '
50 MEMORY 14000:h=14993:DIM s(8)
60 lin=1000:add=h:FOR t=1 TO 936 STEP 8
70 chk=0:FOR b=0 TO 7
80 READ a$:a$=UPPER$(a$):n=1
90 IF LEN(a$)<>2 THEN GOTO 240
100 b$=MID$(a$,n,1)
110 GOSUB 220:IF a=0 THEN GOTO 240
120 n=n+1:IF n=2 THEN GOTO 110
130 p=VAL("&"+a$):POKE add,p
140 add=add+1:chk=chk+p
150 s(b+1)=s(b+1)+p
160 NEXT b: READ a
170 IF a<>chk THEN GOTO 240
180 PRINT "Line";lin;"OK":lin=lin+10
190 NEXT t:FOR n=1 TO 8:READ a
200 IF s(n)=a THEN NEXT:END
210 PRINT"VERTICAL CHECK ERROR":END
220 a=INSTR("0123456789ABCDEF",b$)
230 RETURN
240 PRINT"ERROR in line";lin:END
1000 DATA DD,21,6F,3D,C3,3B,3B,3E, 801
1010 DATA 0A,A7,C8,47,F3,C5,CD,A7, 1260
```

```
1020 DATA 3A,C1,10,F9,FB,C9,DD,21, 1222
1030 DATA 6F,3D,06,08,C5,DD,22,11, 655
1040 DATA 3B,CD,C2,3A,DD,2A,11,3B, 855
1050 DATA 01,19,00,DD,09,C1,10,EC, 701
1060 DATA C9,AF,32,8C,3C,CD,F0,3A, 1129
1070 DATA CD,6D,3C,CD,F0,3A,CD,78, 1202
1080 DATA 3C,DD,2A,11,3B,CD,02,3B, 665
1090 DATA DD,2A,11,3B,DD,7E,18,32, 760
1100 DATA 8C,3C,CD,F0,3A,CD,6D,3C, 1077
1110 DATA CD,F0,3A,CD,78,3C,C9,DD, 1310
1120 DATA 5E,00,DD,56,01,DD,6E,02, 735
1130 DATA DD,66,03,01,04,00,DD,09, 561
1140 DATA C9,06,04,C5,CD,13,3B,01, 692
1150 DATA 02,00,DD,09,C1,10,F4,C9, 886
1160 DATA 1E,3E,DD,5E,00,DD,56,01, 715
1170 DATA DD,6E,08,DD,66,09,19,DD, 917
1180 DATA 7E,10,47,DD,7E,11,80,47, 776
1190 DATA E6,0F,DD,77,10,78,FE,10, 991
1200 DATA 38,01,23,DD,75,00,DD,74, 767
1210 DATA 01,C9,CD,11,BC,47,3E,02, 747
1220 DATA 90,32,6C,3C,FD,21,6C,42, 822
1230 DATA 3A,AC,3A,47,C5,DD,22,11, 828
```

```
1240 DATA 3B,CD,67,3B,DD,2A,11,3B, 765
1250 DATA 01,19,00,DD,09,01,0C,00, 269
1260 DATA FD,09,C1,10,E7,C9,AF,32, 1128
1270 DATA 8C,3C,DD,7E,03,A7,20,0C, 761
1280 DATA CD,F0,3A,CD,6D,3C,CD,F0, 1322
1290 DATA 3A,CD,78,3C,DD,2A,11,3B, 782
1300 DATA FD,7E,00,DD,77,00,FD,7E, 1098
1310 DATA 01,E6,03,DD,77,01,FD,6E, 938
1320 DATA 02,FD,7E,07,E6,40,67,DD, 1006
1330 DATA 75,02,DD,74,03,FD,7E,06, 844
1340 DATA DD,77,04,FD,7E,07,E6,03, 963
1350 DATA DD,77,05,FD,6E,08,AF,DD, 1112
1360 DATA 75,06,DD,77,07,FD,7E,01, 850
```

```
1370 DATA 0F,0F,E6,0F,CD,2C,BC,DD, 933
1380 DATA 77,18,FD,7E,03,47,E6,0F, 841
1390 DATA DD,77,12,DD,77,13,78,0F, 852
1400 DATA 0F,0F,0F,E6,0F,DD,77,10, 646
1410 DATA DD,77,11,FD,7E,07,0F,0F, 773
1420 DATA E6,0F,DD,77,14,DD,77,15, 966
1430 DATA FD,7E,09,0F,0F,E6,0F,DD, 884
1440 DATA 77,16,DD,77,17,FD,6E,04, 871
1450 DATA 26,00,FD,7E,01,E6,80,C4, 972
1460 DATA 55,3C,DD,75,08,DD,74,09, 837
1470 DATA FD,6E,05,26,00,FD,7E,01, 786
1480 DATA E6,40,C4,55,3C,DD,75,0A, 983
1490 DATA DD,74,0B,FD,6E,0A,26,00, 759
1500 DATA FD,7E,07,E6,80,C4,55,3C, 1085
1510 DATA DD,75,0C,DD,74,0D,FD,6E, 1063
1520 DATA 0B,26,00,FD,7E,09,E6,80, 795
1530 DATA C4,55,3C,DD,75,0E,DD,74, 1030
1540 DATA 0F,DD,7E,18,32,8C,3C,CD, 841
1550 DATA F0,3A,CD,6D,3C,CD,F0,3A, 1175
1560 DATA CD,78,3C,C9,AF,57,5F,EB, 1178
1570 DATA ED,52,C9,3A,6C,3C,26,00, 784
1580 DATA A7,C8,47,B7,CB,1A,CB,1B, 1080
1590 DATA 10,F9,C9,02,CD,5C,3C,ED, 1062
1600 DATA 53,5F,3D,22,61,3D,C9,CD, 837
1610 DATA 5C,3C,ED,53,5B,3D,22,5D, 751
1620 DATA 3D,CD,1D,BC,F3,79,E5,D9, 1293
1630 DATA E1,5F,16,03,D9,2A,5F,3D, 760
1640 DATA ED,5B,5B,3D,AF,ED,52,57, 1061
1650 DATA 5F,3C,30,05,EB,B7,ED,52, 945
1660 DATA 2F,22,63,3D,32,67,3D,32, 505
1670 DATA 6B,3D,2A,61,3D,ED,5B,5D, 789
1680 DATA 3D,AF,ED,52,57,5F,3C,30, 845
1690 DATA 05,EB,B7,ED,52,2F,22,65, 924
1700 DATA 3D,32,69,3D,AF,32,6D,3D, 672
```

```
1710 DATA 2A,65,3D,ED,5B,63,3D,ED, 929
1720 DATA 52,19,38,10,32,6B,3D,22, 431
1730 DATA 63,3D,ED,53,65,3D,3A,69, 805
1740 DATA 3D,32,6D,3D,2A,63,3D,E5, 712
1750 DATA E5,CB,3C,CB,1D,C1,78,B1, 1214
1760 DATA 20,01,0C,ED,5B,65,3D,19, 560
1770 DATA D1,AF,ED,52,30,02,19,3C, 838
1780 DATA D5,C5,D9,CD,16,3D,7E,AA, 1211
1790 DATA B3,AB,AA,77,D9,C1,0B,78, 1180
1800 DATA B1,20,E0,D1,C9,F5,A7,3A, 1313
1810 DATA 67,3D,28,03,3A,6B,3D,A7, 600
1820 DATA 28,0F,3D,20,07,CB,0B,30, 417
1830 DATA 08,23,18,05,CB,03,30,01, 327
1840 DATA 2B,F1,A7,3A,69,3D,28,03, 718
1850 DATA 3A,6D,3D,A7,C8,3D,28,0C, 708
1860 DATA 7C,C6,08,67,D0,D5,11,50, 951
1870 DATA C0,19,D1,C9,7C,D6,08,67, 1076
1880 DATA FE,C0,D0,D5,11,B0,3F,19, 1148
1890 DATA D1,C9,90,00,A3,00,95,00, 866
1900 DATA 06,00,9D,00,05,00,01,00, 169
1910 DATA FE,00,00,00,FE,00,51,02, 591
1920 DATA 2E,00,41,00,9C,00,FF,FF, 777
1930 DATA F0,FF,FF,FF,05,00,0B,01, 1022
1940 DATA 04,0C,00,00,08,08,C0,59, 313
1950 DATA 01,9E,00,31,00,73,00,E8, 555
1960 DATA FF,0B,00,E8,FF,0A,00,08, 771
1970 DATA 08,00,00,0B,01,09,0B,0C, 52
1980 DATA 01,00,BE,00,1D,00,5A,00, 310
1990 DATA D5,FF,07,00,D9,FF,F7,FF, 1449
2000 DATA 08,08,0A,0E,01,03,03,09, 56
2010 DATA CC,8F,00,19,00,71,00,88, 621
2020 DATA 00,DE,FF,FB,FF,D6,FF,09, 1461
2030 DATA 00,04,0C,02,06,00,00,01, 25
```

```
2040 DATA 03,30,C2,00,74,00,56,01, 448
2050 DATA A2,00,E1,FF,FA,FF,E6,FF, 1632
2060 DATA FE,FF,0B,01,0B,01,0C,04, 549
2070 DATA 04,0C,F0,22,01,AF,00,0A, 476
2080 DATA 02,07,00,EE,FF,0E,00,0D, 529
2090 DATA 00,F9,FF,0A,0E,02,06,03, 539
2100 DATA 09,04,0C,3C,BA,01,03,00, 275
2110 DATA C4,00,5C,00,1E,00,F1,FF, 814
2120 DATA DA,FF,00,00,09,0B,00,00, 493
2130 DATA 09,0B,03,09,FC,54,02,06, 376
2140 DATA 00,40,02,A3,00,38,00,FB, 536
2150 DATA FF,0D,00,05,00,02,06,03, 284
2160 DATA 09,03,09,0A,0E,03,00,00, 48
2170 DATA 13894,11209,11676,12717
2180 DATA 12597,11429,11688,9455
```

ACU

Why restrict your database to the size of the computer's memory?

Minerva Systems offer you the full storage capacity of your disc using their unique

RANDOM ACCESS DATABASE

SPEED
Add 1000's of records and still find any individual in typically 3 seconds.

FLEXIBILITY
User definable cards.
40 and 80 column text on one screen.
Unlimited printing formats.



RANDOM ACCESS FILING
✓ 6000 records
✓ over 1500 characters per record,
✓ up to 40 fields

MENU DRIVEN
✓ easy to use

KEY FIELD
✓ near instant access

CALCULATIONS
✓ using ANY valid BASIC expression even for searches and sorts!!

SORT
✓ fast, ascending or descending

SEARCH
✓ any number of criteria to build up subset

PRINTING UTILITIES
✓ unlimited printing formats
✓ definable margins, etc.

PRICE
✓ £29.95

✓ supplied on disc for the Amstrad 464 ✓ 664 ✓ 6128

MINERVA SYSTEMS
69 SIDWELL STREET
EXETER DEVON EX4 6PH   TEL 0392 37756

MICROPOWER

YORKSHIRE'S LEADING AMSTRAD SPECIALIST

COMPUTERS PCW 8256 Word Processing Package incl.
computer, disc drive and printer. **£458.85**
2nd Disc Drive **£182.85**
Parallel/Serial Interface **£67.85**
CPC 6128 with 128K memory, 3" drive and colour monitor . . **£399.00**
With green screen monitor **£299.00**
CPC 464 with 64K memory, built-in cassette and colour monitor **£299.00**
With green screen monitor **£199.00**
2nd Disc Drive (6128/664/464) **£99.95**
1st Disc Drive (464) **£159.95**

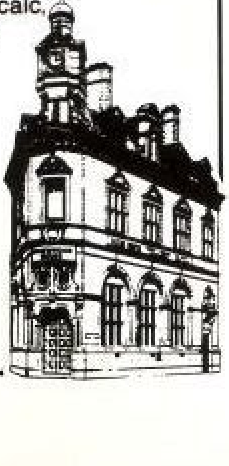
PRINTERS Epson LX80, Amstrad DP 2000, Samleco DX86, Citizen 120D, Juki 6000, Juki 6100, NEC etc.

ACCESSORIES — Speech Synthesis, Light Pens, RS232, TV Modulators, AMX Mouse, Dust Covers, Leads, Printer Ribbons, Paper (ask for details).

SUPERPOWER New Rom-Card (6128/664/464) **£34.95**
Assembler, Disassembler, Monitor (Disc or Roms) **£29.95**
Disc Users Utilities, Programmer's Toolbox & Basic Extensions, Mailing List (Disc or Rom) . . . . each **£19.95**
(please state computer model).

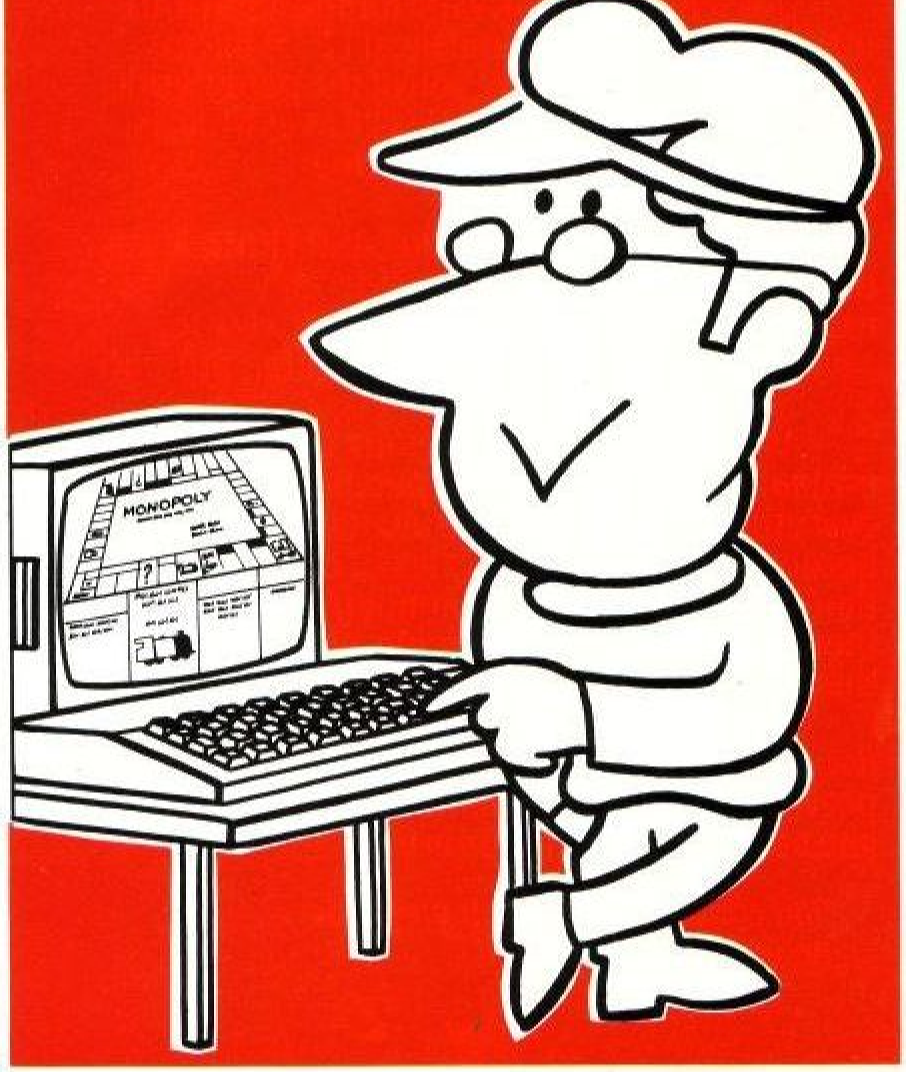
SOFTWARE — Sagesoft, Delta Database, Supercalc, Amsoft Business Control. Large selection of Games.

SHOWROOM/MAIL ORDER
MICRO POWER LTD.,
Northwood House, North Street,
Leeds LS7 2AA.
Tel. 0532 458800/434006



ACCESS/VISA Welcome. Postage/carriage — small items 95p/total order;
Computers/printers etc. £5.00 per item in UK.
Eire/Channel Islands/Export at cost.

NOW! MONOPOLY® for the AMSTRAD



	AMSTRAD	BBC/B	CBM 64	EINSTEIN	SPECTRUM	QL
CLUEDO	*	○	*		*	○
MONOPOLY	*	*	*	*	*	○
SCALEXTRIC	○		* †		○	
SCRABBLE	*	*	*	*		*
RRP cass	9.95	12.95	12.95		9.95	14.95 (cart)
disk	14.95	14.95	14.95	15.95		

** Available Now!   † CBM 64 Scalextric, £9.95 (cassette)   ○ Available 2nd quarter.*

MAIL ORDER:
Please send cheque or Postal order to: LEISURE GENIUS, 3 Montagu Row, London W1H 1AB.
Please send me the following items as marked, for the .... computer.

ACU5/86

	CASS	DISK
CLUEDO	☐	☐
MONOPOLY	☐	☐
SCALEXTRIC	☐	☐
SCRABBLE	☐	☐

(please tick)

NAME ____________________
ADDRESS ____________________
____
POST CODE ____________________

CLUEDO® trade mark and copyright licensed by Waddingtons Games Ltd. MONOPOLY® is produced under license from Parker Brothers and Waddingtons Games Ltd. SCALEXTRIC® is a registered trade mark of Hornby Hobbies Ltd. SCRABBLE® trade mark and copyright licensed by J W Spear & Sons PLC. All copyrights reserved LEISURE GENIUS® is a registered trade mark of Winchester Holdings Ltd.

Software by... Leisure Genius®
3 Montagu Row, London W1H 1AB.

Our Software w
to end your paper

If you run a small business you'll know, only too well, how much unproductive time you spend on that necessary evil, paperwork.

Quest Business Software for the AMSTRAD, IBM and COMPATIBLES and most CP/M micros will, quite simply, relieve you of the paperwork millstone and can PAY FOR ITSELF in as little as ONE MONTH by dramatically increasing your efficiency and profitability.

Since our award winning CASH TRADER was published last year we've considerably expanded our range of Business Software to save you time on accounting, searching through files, typing letters and producing reports.

As many of our packages are available for evaluation prior to outright purchase, you've everything to gain by ordering today. Just because our software costs less it doesn't mean that we've cut corners or skimped on detail – thousands of users, world wide, will testify to that!

All Quest Business Software is very easy to use and we've paid particular attention to provide detailed documentation, and, should you need it, Ongoing support.

You could say that we haven't slept . . .
. . . So you can.

AMSTRAD BUSINESS CONTROL SYSTEM+
QUEST BUSINESS CONTROL SYSTEM*

THE LOW-COST FULLY INTEGRATED ACCOUNTING SYSTEM WITH OVER 30,000 USERS WORLDWIDE!

"Behaves like much more expensive software, and is well structured" 'What Micro' Feb. '86.

These accounting systems designed for the Amstrad, IBM (and compatibles) and most CP/M micros put the power of fully integrated accounting within even the smallest budget. The three modules, of which the system comprises, are Sales Ledger/Invoicing/Stock Control : Purchase Ledger : Nominal Ledger. Modules may be purchased independently if required and full software support is available.

All packages are fully documented and an evaluation suite for ALL THREE modules is available.

EVALUATION COPY ONLY £19.95! (14 day Money Back Guarantee)

CASH TRADER*+

"If your paperwork tends to be somewhat haphazard, Cash Trader is brilliant at creating order out of chaos" – 'What Micro' Feb. '86.

Cash Trader has sold over 5,500 copies since its launch last year and has been universally acclaimed. Designed for business people – not accountants – Cash Trader is as easy to use as a Cashbook with the added advantages of automatic totalling and cross costing, the ability to produce printed reports for VAT and Auditors' requirements and the tremendous benefit of accepting ANY TYPE OF ENTRY in ANY ORDER – eliminating tedious manual paperwork sorting.

Additional reports from CASH TRADER may be simply produced with ANALYSER – a low cost add-on module.

Cash Trader and Analyser are supplied with full documentation and software support, if required.

. . ."an outstanding and original contribution to business profitability and efficiency" The Standard Micro Business Awards. Sept. 1985.

EVALUATION COPY ONLY £19.95! (14 day Money Back Guarantee)

+ For Amstrad WPC 8256, CPC 6128, 664 and 464 (Twin Drive)
* IBM, Compatibles and most MSDOS or CP/M micros. Cash Trader can run on a single drive.





The joystick jungle explored by Steve Godwin

The quality of Amstrad games has improved greatly over the last few months, and more good, original titles are being released along with the steady stream of conversions.

A lot of people play these games using the keyboard, but others prefer a joystick.

There are countless joysticks on the market at the moment, so choosing one can be no joy at all. Which joystick you buy is down to price, potential use and most of all personal preference.

Types of joystick

You can split joysticks into four basic types. The first is the pressure pad type. This is used in cheaper joysticks and relies on a convex metal disc being pushed down to make contact and register a direction.

The second type is the leaf switch. This construction relies on a metal strip being pushed on to another metal strip or contact by the movement of the joystick. This gives quite a smooth action and is commonly used in arcade machines.

The third type of assembly is the microswitch. This, as the name suggests, uses tiny switches to control the action. The result is a very clean and responsive feel with good audible feedback (a click). The microswitch joystick is also used in some arcade machines.

The last type uses potentiometers. These are variable resistors and give an analogue reading in the form of a variable voltage level, as opposed to the usual digital reading.

This means that the computer can tell not just whether the joystick is up, down, left or right, but exactly where the shaft is. For Amstrad games this is not relevant, and the joystick acts like any other, but the potentiometers do give it a soft, progressive feel.

Auto-fire-fire-fire

Other features available on various joysticks are suckers to hold the joystick to a surface and different firing systems including micro switches and leaves.

Some joysticks have an autofire option. This has the same effect as repeatedly pushing and letting go of the fire button and can help greatly in "shoot-em-up" type games.

However autofire needs some power from the computer, which is not present on the Amstrad machines and seems to lock up the whole firing system.

Before I start summing up individual units, may I just emphasise that joysticks are a very individual thing and the comments made below are my own feelings.

All the joysticks tested were used to play three games. The first was Defend or Die. The idea here was to test the fast manoeuvreability of the shaft and its firing capabilities. These qualities are what you would look for to play

Quickshot I

The Quickshot 1 is the granddaddy of the Spectravideo Quickshot range. This joystick is a few years old and shows its age somewhat.

It uses the pressure pad system for control which tends to lose its feel after heavy use.

There are two fire buttons, one each for the shaft and base. The base mounted button has to be pressed too hard for my liking, but the button on the shaft has a nice, fast action.

The suckers on the base seemed to hold the unit well in place as long as not too much pressure was exerted.

It played quite well on Defend or Die but didn't have the right feel for Fist. Being a pressure pad type joystick it would not last very long if you subjected it to many games of Decathalon.

Quickshot II

This unit has autofire and unfortunately didn't work with the Amstrad. The stick has leaf contacts and two fire buttons, one on the top of the shaft and one in the trigger position.

Even with the autofire off it does not feel very positive. As a desk mounted joystick, it works better than most with exceptionally strong suckers.

Quickshot IV

This is a Quickshot I with a choice of handles. There is a thin one for sporting games, a pistol grip for "shoot-em-ups" and one with a ball at the top, supposedly for driving games.

The handles obstruct the shaft-mounted firing button causing it to stick in the down position.

My favourite option is not shown in the instructions – using the stick with none of the handles attached. This makes the unit quite responsive and gives the firing button a great feel. All I need now is a use for three spare handles.

Quickshot VII

This hand-held unit relies on a pad for direction control. It looks a bit like a communicator from Star Trek.

To move the joystick, you have to slide or tilt your finger over the pad, pushing the edges in the relevant direction.

There is a definite lack of control on this unit and the final straw was when I burned my finger when trying to play Decathlon.

The autofire prevented firing from working properly. There are a couple of LED lights which would shine when you press fire, if there was power from the computer – but there isn't so they don't.

Quickshot IX

This must qualify as a joystick juggernaut – it's huge. But it is another joystick with autofire problems.

Quickshot call this a joyball as it is halfway between a joystick and a trackball. There is a hemisphere on which you place your hand, tilting the top in the direction you wish to go.

If the firing worked, this would have been quite useful for Fist.

The suckers on the base give a firm grip and the two firing buttons by the side of the ball would be nice if they worked.

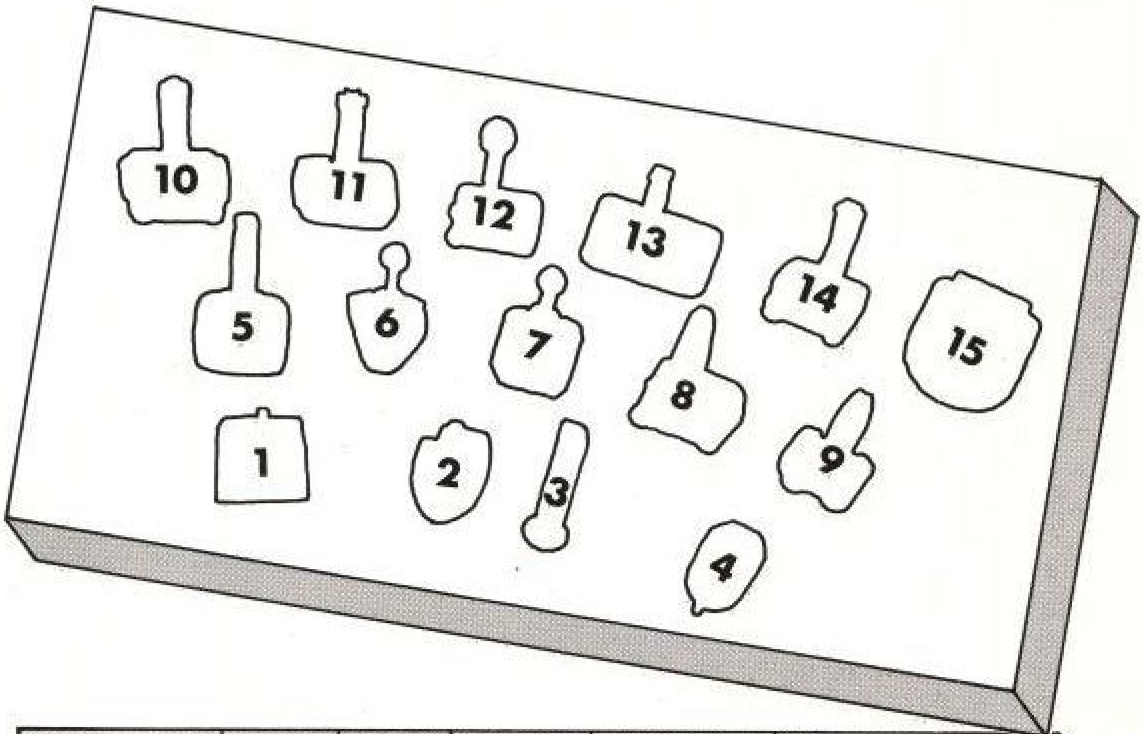
"shoot-em-up" games.

In general, microswitch joysticks seemed to be good for these games with the audible feedback helping a great deal.

The second game was Way of the Exploding Fist. This game is a good test of a joystick's accuracy, especially on diagonals. On the whole I found the microswitch joysticks suffered a bit in this field and the leaf sticks did well.

The final game was Decathlon. This tests general speed and durability of a unit. Most joysticks were about the same on this game although the ones with the shorter travel performed better.

As a rule, the more expensive joysticks also seemed to be the more durable.



Conclusion

To sum up, if you don't want to spend too much on a joystick, the Gunshot seems the best value, whereas if you have a bit more money to spend, I feel

Kraft

The Kraft is square, black and box-like. It looks very primitive but has an extremely nice feel to it.

It has one fire button on the base with a slightly mushy response, and a funny feeling shaft.

Although the joystick seems funny, I did gain plenty of respectable scores with it.

The small base fits quite well in the hand although table top operation isn't really much cop.

One feature is a four or eight-way switch. The four-way option does not register diagonals and therefore makes games such as Pac-man easier to play.

Being an eight-way microswitch joystick it gives a good, positive feel when exploding the odd fist.

Joystick	Cost	Cable length (feet)	Suckers	Guarantee	Type
1 Kraft	£12.95	8	No	1 year	Microswitch
2 Konix	£12.95	3.5	No	1 year	Microswitch
3 The Stick	£12.99	4.5	Yes	1 year	Mercury
4 QS VII	£9.95	4	No	90 day	Touch pad
5 The Boss	£12.95	5	No	30 day	Leaf
6 Arcade	£11.95	4.5	No		Microswitch
7 Comp Pro	£12.95	5	No		Microswitch
8 QS I	£6.95	4	Yes	90 day	Pressure pad
9 JY2	£14.95	5	Yes		Pressure pad
10 Gunshot	£7.95	4.5	Yes	1 year	Leaf
11 QS II	£11.95	4	Yes	90 day	Leaf
12 QS IV	£12.95	4	Yes	90 day	Leaf
13 Gravis	£29.95	4	No	1 year	Potentiometer
14 Cheetah	£8.95	4	Yes	1 year	Leaf
15 QS IX	£17.95	4	Yes	90 day	Microswitch

Notes:

I. Prices may vary quite drastically, so shop around.

II. Lengths are those of review units.

that the Gravis is worth the extra.

The final choice is still down to the individual, and the kind of games you play. The Konix may suit your style better than the Gunshot, but then who wants to play namby pamby maze games? Gimme a blast-em any old day. Hopefully, the above observations may make the decision slightly easier.

Where to buy

A good local shop should not only stock a range of joysticks but also let you try them out. The Virgin games centre in Oxford Street, London, seems to have a good range but knowing what any shop will stock at any time is something that is about as predictable as the Amstrad share price.

The best place to buy is a computer show, where there are lots of stall holders each with a slightly different selection of wares and the prices are often very keen.

Most of the joysticks reviewed here should be available through a specialist computer shop, but you might have trouble getting hold of *(Ouch – Ed)* the Gravis and the Konix.

The Konix Speedking is available from Creative Devices Research, telephone 049525 5913, and the Gravis Mk VI from Teknacron Circuits, Landguard Manor Road, Shanklin, Isle of Wight.

Cheetah 125

This is very like the Quickshot II with the addition of two buttons on the base bringing the total to four. This can only be described as overkill.

The Cheetah stick seemed good on all games – the variety of fire button positions should keep you more than happy. This joystick does have autofire, but it doesn't seem to affect its operation on the Amstrad. The overall construction is solid – a cheap, durable joystick.

Amstrad JY2

Yuk. The JY-2 uses pressure pads that are both stiff and noisy.

The base is too small to comfortably hold down on a flat surface, but too large to hold in the hand.

The suckers on the base give way as soon as the shaft is moved — a bit naff if you ask me.

The only thing going for it is a through connector to connect a second joystick. This makes the JY-2 essential for two-player games, although there aren't many of those. *(Who wants to play Centre Court anyway - Ed).*

To cap it all it is very highly priced at £14.95.

I feel that Amstrad have not met their usual standards for quality and value here.

The Stick

This is a novel joystick and whereas the idea is not new, this implementation is quite good.

The switches are mercury tilt switches. They work by having a blob of mercury in them which falls to one end when the switch is tilted.

Four of these in the joystick give the four directions and the two fire buttons press a kind of calculator key inside the stick.

The idea is that there is no base and you simply hold it in one hand and tip it in the relevant direction.

This makes Decathlon super-easy, but makes games where any accurate control is needed quite difficult.

There is an optional sucker you can place on the bottom to make it feel like a conventional joystick, but this seems to defeat the object of the tilt switches and is not really much use.

Konix Speedking

There are no suckers on this little joystick. The Konix is a definite hand-holder. You even need to specify left or right handed joysticks when you order.

The problem with joysticks designed to fit into the palm of your hand is that the palm of your hand may not be designed to fit around it.

So if you have got a pair of mitts like Geoff Capes you may find it a bit too small.

But when tested with a variety of hands which happened to be in the *ACU* office the Konix proved to be a comfortable fit for the majority of players.

The single fire button is very easy to get at, the joystick nestles in your hand in just the right way, but it is a little difficult to pound away on the button.

The precise feel to the Konix means that maze game high scores are easily bettered, and it proved its worth at both Fist and Decathalon. But a shade too much trigger pounding is needed for Defend or Die.

Gravis Mk VI

This joystick outranks all the others reviewed. It has professional written all over it.

There are three fire buttons, one on the shaft and two on the base. They may all be individually turned on or off – which is a little confusing when you first get it and can't get any of the to work. You need to read the comprehensive instruction leaflet.

The fire buttons all use micro switches and have a wonderful feel to them.

The shaft is also something else. It is coated in a foam that gives a lovely grip and is adjustable.

This is a potentiometer type joystick and has a feature that as far as I know is unique. Some of these types of joystick are self centering and some are not.

This means that in some cases, the shaft always returns to rest in the middle, and in the others, the shaft remains where you leave it.

The Gravis lets you select, not just these two options, but eight levels of "self centreingness" from not at all, through to reasonably stiff.

This stick, with a high tension setting was wonderful for Defend or Die, and with the tension on quite low, was lovely on Fist. The idea of this is that you have total control but just enough tension to guide the shaft into the centre for when you wish to stop. This was even quite good on Decathlon, but stands out to things like the Konix.

This is an all-round joystick with only one drawback, the price – it costs £29.95. This makes it twice as expensive as most rivals, but with all the adjustments it is like having two different joysticks.

The Boss

Wico are a famous American joystick manufacturer. They make some of the flashiest and most expensive joysticks around.

The Boss is the bottom of their range but benefits from its relationship with the posh ones. Amiga used to be an American joystick manufactuere and look what happened to them.

This joystick uses leaf switches and has one fire button on top of the shaft. It has a robust feel to it but doesn't have the accuracy for Fist and seems to have slightly too much travel for a good game of Decathlon.

Gunshot

The joystick with a wild west name is very much like the Quickshot II and uses a form of leaf switch.

I can't pin down what is so nice about this one but it seemed to have the agility and firing for Defend or Die, the accuracy for Fist and the speed and stamina for Decathlon.

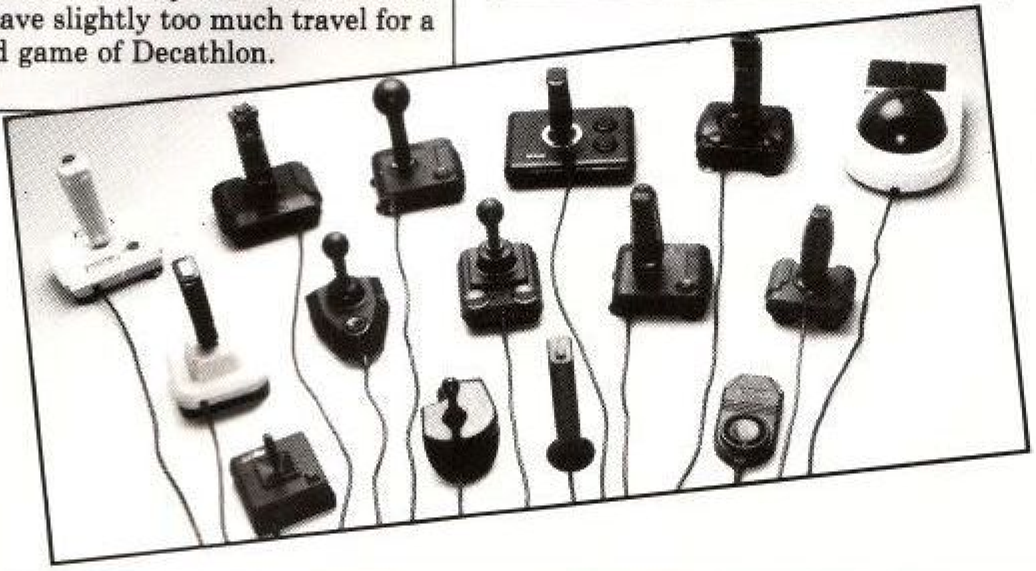
This joystick knocks the socks off all the other models in the price range. If you want an all round joystick that is also cheap, look no further. At £7.95, it's a steal.

Competition Pro

The Competition Pro, is sold under a variety of names and used to be available as a leaf switch joystick.

This version uses micro switches and has a positive feel. However I was not too keen on the two fire buttons which had no real audible or tangible feedback.

I found that my firing finger got tired quite quickly while playing Defend or Die. Because of the large, meaty handle there is a temptation to yank the stick hard to the left and right but that is not the correct way – you need a gentle touch to get the most from a Comp Pro.



Arcade

This stick is very like the Comp Pro but it only has one fire button. This fire button, however, uses a microswitch giving it a far more positive feel and greater all round appeal.

The base is not as strong so it may not last as many Decathalons as the Comp Pro. There is not that much throw in the stick making it feel too tall – not my cup of tea.

SCHOOL SOFTWARE LTD.

Meadowvale Estate, Raheen, Limerick, Ireland.
Telephone: (061) 27994, (U.K.) 010—353—61—27994.

EXAM REVISION



MAGIC MATHS (Age 4-8)
A superb arcade style game which holds the attention of children. Learn addition and subtraction while trying to drive a train at 100 m.p.h.

MATHS MANIA (Age 8-12)
This program has the extraordinary effect of making multiplication and division addictive. Maths will never be the same again. An excellent program.

BETTER MATHS 1 (Age 12-16)
Covers a very wide range of popular sections of maths at this level. Contents: Approximation measuration, simple interest, factors, percentages, simple calculations, algebraic factors, sequences and series, tests. The program includes essential formulae. Excellent graphics.

BETTER SPELLING (Age 9-14)
An exciting new way to improve your spelling, this courseware package concentrates on all the key areas of English spelling. Real value for money with up to 16 menu options. Prepared by an English language author.

PHYSICS 1 (Age 12-16) CSE/O LEVEL
An outstanding program which makes excellent use of graphics. Contents: 1. Matter/Density. 2. Law of the Lever. 3. Pressure. 4. States of Matter A. 5. States of Matter B. 6. Heat/Temperature. 7. Current Electricity. 8. Magnetism-Electrostatics. 9. Light/Sound.

BIOLOGY 1 (Age 12-16) CSE/O-Level
This program gives key definitions and promotes interactive learning through the question and answer sessions. Contents: 1. Life & Cells. 2. Mammals & Plants. 3. Photosynthesis and Enzymes. 4. Respiration/Excretion. 5. Transport. 6. Sensitivity. 7. Reproduction. 8. Cycles and Micro-organisms.

CHEMISTRY 1 (Age 12-16) CSE/O-Level
A wide ranging basic course in chemistry. Ideal for first examinations. Contents: 1. Chemical Changes. 2. Oxygen/Hydrogen A. 3. Oxygen/Hydrogen B. 4. Atoms. 5. Carbon/Sulphur. 6. Oxidation/Reduction. 7. Acids/Bases. 8. Ion exchange/Water.

WEATHER/CLIMATE (Age 12-17)
This program uses the multiple choice format for an in depth analysis of this topic. Topics: Weather observation, Instruments, Pressure, Wind, Temperatures, Climates.

Cassettes £9.95 each
Discs £12.95 each

48 hour MAIL ORDER

CPC 464/664/6128/
PCW 8256 (April release)

RSD CONNECTIONS LTD

MONITOR LEADS

BBC to Microvitec	£2.20
TV to Computer	£1.25
Green Screen	£2.95
BBC to Fidelity etc.	£4.95
QL to Fidelity etc.	£4.95
Phone to Phono	£1.25
BBC to Ferguson	£2.50
QL to Microvitec	£2.50
QL to mono monitor	£1.50
BBC to Sony/Kaga	£5.95
BNC to BNC	£2.95
COMMODORE to Ferguson	£2.50
BBC to Hitachi	£2.50
SONY to Fidelity etc.	£6.50
MSX to Ferguson	£2.50
QL to Ferguson	£2.50

IDC AMPHENOL

36-way plug	£4.95
36-way socket	£5.95
36-way plug (solder type)	£4.95

DISK DRIVE LEADS

Dual disk drive power lead	£4.50
Dual disk drive lead 1m	£10.25
Single disk drive power lead	£2.75
Single disk drive extn. lead 1m	£7.25
Disk drive extn. lead 1m	£7.25
AMSTRAD 2nd DRIVE	£6.95

CASSETTE LEADS

BBC to cassette	£2.25
DRAGON to cassette	£2.20
SPECTRUM to cassette	£1.25
BBC to Acorn cassette	£2.25
AMSTRAD to cassette	£2.20

PRINTER LEADS
ALL 1 METRE LENGTH

BBC	£9.95
BBC serial	£8.95
AMSTRAD	£10.75
MEMOTECH	£12.75
EINSTEIN	£12.75
IBM PC	£12.75
SPECTRUM interface One to RS 232	£9.75
ATARI	£15.25
MSX	£13.95
APRICOT	£15.20
DRAGON	£9.95
QL	£10.75

ANY COMBINATION OF LEADS MADE TO ORDER

AMSTRAD EXPANSION PORT EXTENSION LEADS

NEW!

6" Single F to m	£10.50
Double F to 2M's	£14.75

Suitable for 664 & 6128
The easy way to connect your add-on's

AMSTRAD MONITOR EXTENSION LEADS

To 464, 1m	£6.50
To 664 & 6128	£7.50

AMSTRAD PRINTER LEADS

1 mètre	£10.75.
2 metres	£12.50

AMSTRAD 2nd DRIVE LEAD

Suitable 664 & 6128. 1m	£6.95

AMSTRAD 8256

1m. Printer Extn. lead	£9.50

AMSTRAD CASSETTE LEAD

1m. 5-pin to 3-Jack	£2.20

IDC SHROUDED HEADERS WITH EJECTING LOCKING ARMS

	Straight	Right Angle
10-way	.85	.90
14-way	£1.00	£1.20
16-way	£1.25	£1.45
20-way	£1.40	£1.60
26-way	£1.70	£1.95
34-way	£2.00	£2.30
40-way	£2.15	£2.45
50-way	£2.30	£2.65
60-way	£2.45	£2.85

DISTRIBUTION SOCKET

4-WAY MAINS

4-way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required. Very useful for tidying up all the mains leads from your peripherals. Allows the whole system to be switched on from one plug.
ONLY £9.50

IDC D CONNECTORS

	Male	Female
9-way	£2.70	£3.20
15-way	£3.20	£3.70
25-way	£3.80	£4.45
37-way	£5.90	£6.80

RIBBON CABLE (Price per ft)

	Grey	Rainbow
9-way	.13	.24
10-way	.15	.28
14-way	.18	.32
15-way	.20	.36
16-way	.22	.40
20-way	.30	.50
24-way	.36	.60
25-way	.40	.65
26-way	.45	.70
34-way	.60	.80
37-way	.65	.85
40-way	.70	.90
50-way	.95	£1.25
60-way	£1.10	£1.40
64-way	£1.15	£1.50

TELEPHONE CONNS

Surface master jack socket	* £3.75
Surface extn socket	£2.50
Dual outlet adaptor	£4.25
Line jack cord 3mr	£1.85
4 core cable per metre	15p

BT Plugs each 48p

CONNECTORS IDC

	Card Edge	Trans PCB	2 Row Socket
10-way	£1.20	£0.85	£0.80
14-way	-	-	£0.90
16-way	£1.60	£1.20	£1.00
20-way	£1.90	£1.35	£1.20
26-way	£2.40	£1.60	£1.45
34-way	£3.10	£1.95	£1.60
40-way	£3.40	£2.00	£1.85
50-way	£3.85	£2.25	£2.00
60-way	£4.80	£2.60	£2.25

D CONNECTORS

Solder Bucket	Male	Female
9-way	.75	£1.00
15-way	.95	£1.50
25-way	£1.50	£1.90
37-way	£2.40	£3.25

HOODS .95

TRADE ENQUIRIES WELCOME

75p P&P IN UK. Access & Visa accepted. Add 15% VAT to all orders
Cheques made payable to
RSD Connections Ltd, Dept AU5 PO Box 1, Ware, Herts.
Tel: 0920 5285/66284

★ CP/M SOFTWARE & SUPPORT FROM DRA ★

POCKET PROSTAR SUITE

£149.00

Includes Pocket WordStar, Pocket CalcStar, Pocket DataStar and Pocket ReportStar—PLUS the DRA independent Pocket ProStar Guide. Available for Amstrad 8256 (or 6128 with 2 drives), BBC Z80, etc.

- ★ MicroPro's integrated family of software programs
- ★ Pocket WordStar for word processing and mail merging
- ★ Pocket CalcStar spread sheet for calculations, projections and analysis
- ★ Pocket DataStar database filing and retrieval system
- ★ Pocket ReportStar the powerful report generator and data sorting program
- ★ Pocket ProStar Guide for the complete beginner to the most experienced MicroPro user
- ★ Support from DRA – the MicroPro software experts

Using the MicroPro Pocket programs and the Pocket ProStar Guide, you will be able to design complete systems for your small business, professional practise (e.g. medical, legal), for office administration, or for education at all levels from primary school business/computer studies to university research departments. The MicroPro reference manuals are available at extra cost.

FREE SOFTWARE HANDBOOK PLUS 70 CP/M PROGRAMS ON DISC

CPC464, CPC6128 require Mallard Basic or other Micro-soft compatible basic

3" disks/book set

- ★ A comprehensive selection of favourite Public Domain CP/M programs – with excellent documentation in the form of the Handbook
- ★ Chapters on Family Fun, Directory Assistance, Useful Utilities, Libraries and Catalogues, Communications, and a Hacker's Toolbox.

£39.95

Send Cheque (or VISA/ACCESS number) to:

DAVIS RUBIN ASSOCIATES LTD
1 Canonbourne, Weston sub Edge, Glos. GL55 6QH
VISA/ACCESS orders: TEL (0386) 841181 All prices include VAT and Postage

★★★★ SEND FOR OUR FULL LIST ★★★★

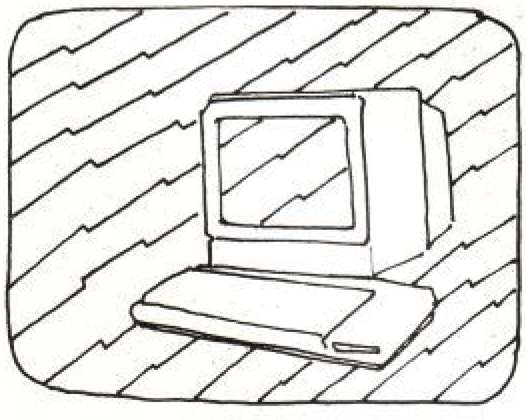
One Liners

Way back in January, Simon (the Editor) asked you to send in OneLiners. These are very short programs, usually one line long (surprise, surprise).

We didn't ask for anything in particular except a program that might be typed into a display machine in a shop. This prompted a number of "catch-you-out" type programs. The rest fell into the categories of games, graphic displays and utilities.

Here are the programs, I hope you have fun typing them in.

Psychedelic



Mr O. Cunningham from Livingston, West Lothian sent us three programs. The first two produce psychedelic effects on the screen. The third is a simple space invader type game. This is very similar to Conrad Brown's program.

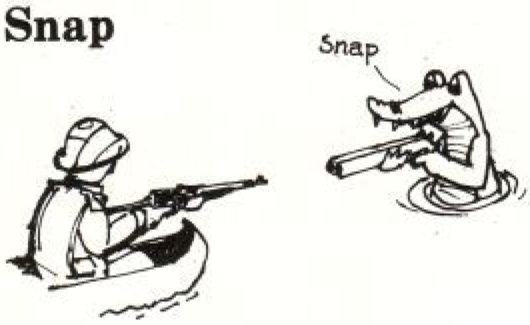
In the third program the keys to use are Z and X. The first line can be left out if required.

```
10 CLS:RANDOMIZE TIME
20 BORDER RND*26:INK 0,RND*26:INK 1,RND*
   26
30 OUT &BC00,RND*255:OUT &BD00,RND*255
40 GOTO 20
```

```
10 CLS:RANDOMIZE TIME:MODE 0
20 WHILE-1:WINDOW RND*19+1,RND*19+1,RND*
   24+1,RND*24+1:PAPER RND*15:CLS:SOUND
   1,RND*200+1,10:BORDER RND*26:FOR n=0
   TO 15:INK n,RND*26:NEXT:WEND
```

```
1 BORDER 0:INK 0,0:SYMBOL 241,24,60,126,
  219,255,255,153,153:INK 1,18
2 MODE 0:WHILE INKEY$="":WEND:x=10:y=25:
  a=0:WHILE a=0:LOCATE INT(RND*20)+1,1:P
  EN 1:PRINT CHR$(241):LOCATE 1,1:PRINT
  CHR$(11):a$=LOWER$(INKEY$):x=x+(((x>1)
  -(x<20))+((a$="z")-(a$="x"))):PEN 3:LO
  CATE x,y:PRINT CHR$(239);:a=TEST(x*32-
  16,(26-y)*16)=1:WEND:RUN
```

Snap



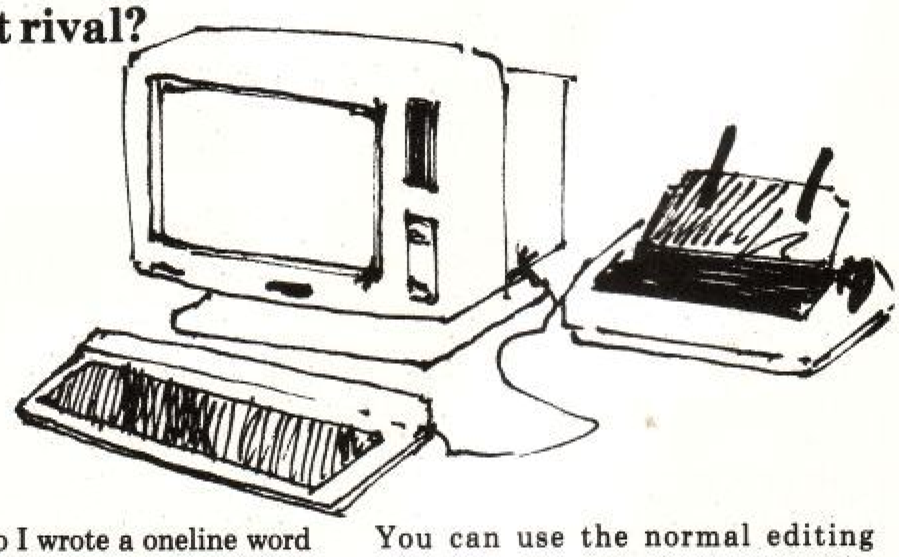
Test your reflexes by pressing S when the numbers match. To quicken the game decrease 400 to a smaller number.

```
10 CLS:n=INT(RND*9):g=INT(RND*9):LOCATE
   18,12:PRINT n;g:FOR a=1 TO 400:NEXT:a
   $=INKEY$:IF a$<>"s"THEN 10 ELSE IF a$
   ="s" AND n=g THEN PRINT"snap":FOR a=5
   00 TO 5 STEP-2:SOUND 1,a+100,1,7:NEXT
   :ELSE PRINT"what":SOUND 1,400,20,7:FO
   R a=1 TO 500:NEXT:GOTO 10
```

Snap was sent in by J.A. Morriss, of Mansfield, Notts.



Locoscript rival?



Many moons ago I wrote a oneline word processor called Ratwords (it's an anagram). Now Rev. Allan Webster from Glasgow has gone a stage further with his his word processor program, Fastword.

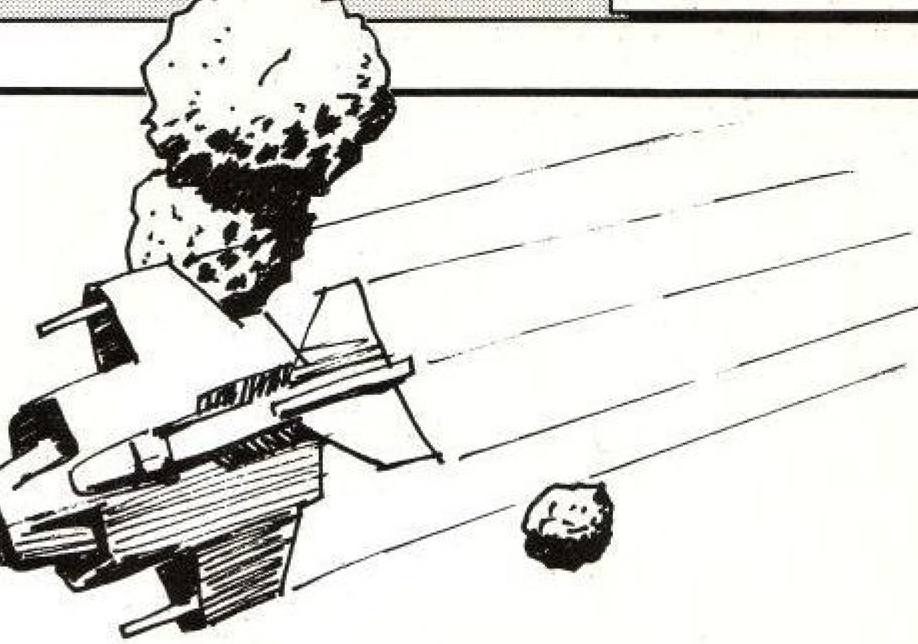
The program defines various keys on the 464's keypad. When you run the program you are presented with a line number generated by the Auto command.

Start each line by pressing the 0 and '.' keys on the numeric keypad. The text you type in after that becomes part of the program.

You can use the normal editing features to edit the text. Use the right hand edge of the screen as the right margin. Press Enter to finish a line. End the letter by pressing Esc to break from Auto. Press 8 to print the text and 9 to save it.

```
10 MODE 2:KEY 128,"print#8,spc(10);":KEY
   DEF 7,0,34:KEY 130,"renum 11,11,2":K
   EY 136,"goto 11":KEY 137,"speed write
   1:save":AUTO 11,1
```

More space in these programs



The next two programs were sent in by Conrad Brown of Enfield.

In the first one you use the cursor keys to move the spaceship left and right.

```
10 MODE 0:INK 1,26:INK 0,0:x=302:WHILE (
   TEST(x+8,22) OR TEST(x+8,18))=0:TAG:M
   OVE x,14:PRINT CHR$(239);:MOVE RND(1)
   *630,380:PRINT CHR$(144);:TAGOFF:LOCA
   TE 1,1:PRINT CHR$(11);CHR$(11);:x=x-(
   INKEY(8)AND x>2)*4+(INKEY(1)AND x<630
   )*4:WEND:RUN
```

Similar to Mr Cunningham's isn't it? Well it's not surprising really. There's only so much you can do in one line and two people were bound to have the same idea.

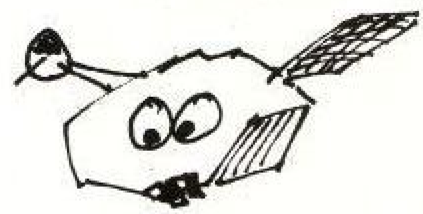
The second program generates a picture of a planet. It runs to several lines but we feel that it's within the spirit of the competition – to get the computer to produce a lot for a little input.

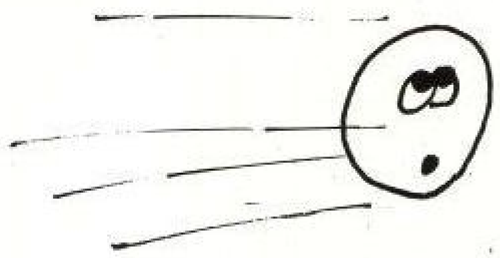
```
10 DEFINT r,y,x,k:MODE 2:INK 0,0:INK 1,2
   6
20 r=60+RND(1)*30:x1=RND(1)*530+r:y1=r+R
   ND(1)*320
30 FOR t=0 TO 100:PLOT RND*640,RND*400,1
   :NEXT
40 r1=r↑2:FOR y=-r TO r STEP 2
50 MOVE x1-SQR(r1-y↑2),y1+y:DRAW x1+SQR(
   r1-y↑2),y1+y,0
60 si=SQR(r1-y↑2):FOR x=-si TO si
70 a=RND*2:IF a<ABS(x/(ABS(si)+1)+1)THEN
    PLOT x1+x,y1+y,1
80 NEXT:NEXT
90 a$=INKEY$:IF a$=""THEN 90 ELSE RUN
```

Important variables

r is the radius of planet in pixels.
x and y give the centre point of the planet on the screen.
a is a constant relating to the shading. This gives interesting effects if experimented with.

Peter Melville-Brown sent us another space program. The idea of this one is to shoot down the moving star. Peter thinks of it as a comet, perhaps even Halley's. (You can't go round shooting things just because they're boring). Each time you use the laser beam you're warped into another galaxy.





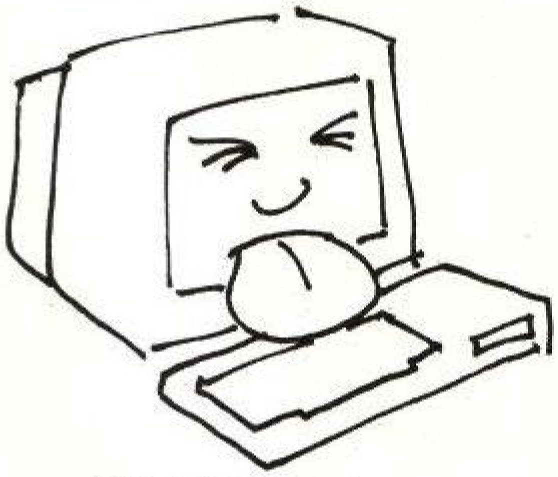
```
10 INK 2,9,26:MODE 1:FOR i=0 TO 99:PLOT
   RND*629,RND*399,1:NEXT:x=250:y=x:WHIL
   E INKEY$="":PLOT x,y,0:x=x+INT(RND*3-
   1)*2:y=y+INT(RND*3-1)*2:PLOT x,y,2:WE
   ND:MOVE 0,0:FOR i=1 TO y:DRAWR 10,10,
   2:DRAWR -10,-10,0:MOVER 1,1:NEXT:IF x
   =y THEN SOUND 1,99:RUN ELSE
```

Sneaky fellows

The following program, send in by D.W. Naylor of Maryport, Cumbria, is a bit of an old chestnut.

It generates the computer's sign-on message and then sits there doing nothing. My favourite variation on this theme is a program I saw that randomly changed the amount of k the computer had.

```
10 ON BREAK CONT
20 CLS:PRINT:PRINT" Amstrad 128K Microco
   mputer  (v3)"
30 PRINT:PRINT " ";CHR$(164);"1985 Amstr
   ad Consumer Electronics plc"
40 PRINT"                 and Locomotive Soft
   ware Ltd."
50 PRINT:PRINT" BASIC 1.1"
60 PRINT:PRINT"Ready":PRINT CHR$(143)
70 a$=INKEY$:GOTO 70
```



Here's a program in a similar vein that prints a rude message when someone attempts to use the keyboard.

This was sent in by G.J. Edwards of Guiseley, Leeds. It is the kind of thing Vyk from Amstrad technical delights in.

```
10 ON BREAK GOSUB 60
20 WINDOW #0,1,40,9,25:CLS#0
30 CALL &BB03:CALL &BB18
40 LOCATE 7,9:PRINT"Go away and leave me
   alone."
50 now=TIME:WHILE TIME-now<600:WEND
60 RUN
```

Who wins?

Now all that remains to be done is to choose the winner. (Rips open gold envelope).

The winners are O. Cunningham and Conrad Brown and they'll be receiving their prizes just as soon as we've decided what to give them.

Thanks to all those who sent us their programs. I'm sorry we haven't had space to include them all.

Advantage

The Independent Computer User Group

INCORPORATING AMSCLUB

21 GAMES ON DISC FOR ONLY £10.95

Specially written for the CPC range of computers this collection of popular and varied games will give hours of entertainment. They have all been fully tested and debugged. Also available on tape.
DISC £10.95 (UK) £11.95 (Overseas) £8.95 (Members) TAPE £8.95 (UK) £9.95 (Overseas) £6.95 (Members)

16 UTILITIES DISC FOR £10.95 for CPC range

BACK-UP tape-tape & tape-disc, CHARACTER DESIGNER, 12 ready-to-run CHARACTER SETS, two KEYBOARD definers, MEMORY MONITOR & EDITOR, ASSEMBLER, DISASSEMBLER, DIRECTORY PRINTER, COLOUR CHARTS, PROGRAM TRACER, SCREEN DUMP, RSX COMMANDS, DISC SECTOR EDITOR, FILE MANAGER for one-key Erase, Rename, Cat, List, UTILITY MANAGER. All fully menu-driven with HELP screens and print-out option.
£10.95 (UK) £11.95 (O/S) £8.95 (Members) * 13 Utilities on TAPE for CPC464 * £8.95 (UK) £9.95 (O/S)

"C" PACKAGE FOR ONLY £12.95

For CPC6128 or PCW owners wishing to learn about the "C" Language and experienced programmers.
* Powerful compiler * Full screen program editor * 21k of on-screen documentation * Worked examples * The complete source code for the compiler * Utilities written in "C" * Games written in "C"
Disc, including postage, £12.95 (UK) £13.95 (Overseas) £10.95 (Advantage Members)

CP/M UTILITY COMPILATION ON DISC FOR £8.95

CP/M II contains DIRECTORY, 20 function FILE MANAGER including read-only, multiple rename or erase, and hide from directory, ERASED FILE RECOVERY, DISC SECTOR EDITOR, FULL SCREEN TEXT EDITOR, PRINTER FORMATTER, Easy FILE DISPLAY for listing text files 24 lines at a time, forwards or backwards, HEX and ASCII CODE DUMP, FAULTY SECTOR ELIMINATOR, STRING FINDER, COMPARE FILES, TYPEWRITER EMULATOR.
CPC and PCW compatible. Disc £8.95 (UK) £9.95 (Overseas) £6.95 (Advantage Members)
CP/M IV also available at same price; contains INVENTORY MANAGER, LIBRARY, DISC SAVER and many more.

CP/M GAMES COMPENDIUM ON DISC FOR £8.95

Suitable for all CPC and PCW computers, includes the famous Cave Adventure, Chess, Othello, Golf, Biorythm Calculator, Word-Search Puzzle Maker, Calendar Generator, Maze Designer & Banner Printers.
Disc, including postage, £8.95 (UK) £9.95 (Overseas) £6.95 (Advantage Members)

NATIONAL & INTERNATIONAL USER GROUP

We are pleased to announce that Advantage has taken over AMSCLUB and is now the largest independent user group for the Amstrad computer range. We aim to support all Advantage and AMSCLUB members. Membership includes monthly Newsletter, user-support, opportunity to share views, programs and ideas plus access to software at special prices. Fee is £8.95 per year (UK) or £13.95 (Overseas)

Advantage (DEPT U6) 33 MALYNS CLOSE CHINNOR
OXFORDSHIRE OX9 4EW

CP/M packages contain some Public Domain Software which is supplied free of charge.

AMSTRAD IN MANCHESTER

NOW IN STOCK

CPC 6128
CPC 464
THE NEW PCW 8256!!

PLUS..PLUS..PLUS..PLUS..PLUS..PLUS..PLUS..PL

- JOYSTICKS ● SPEECH SYNTHESISERS
- MP2 COLOUR MODULATORS
- "SUPER POWER" EXPANSION KITS
- ARNOR-MAXAM, UTOPIA AND PROTEXT

— AVAILABLE ON DISK AND CASSETTE —

PLUS..PLUS..PLUS..PLUS..PLUS..PLUS..PLUS..PL

A WIDE RANGE OF SOFTWARE FROM WORD PROCESSORS TO GAMES
ALL GAMES AT BUDGET PRICES:
AT LEAST 50% OFF!!

NOW IS THE TIME TO CALL IN AT:



BUDGET SOFTWARE CENTRE
51 FENNEL STREET
MANCHESTER M4 3DY

OR TEL: 061-834 2808

Evesham Micros

THE UTILITY SPECIALISTS

DISCMASTER V1.0

At last a **POWERFUL disc backup and utility** package for the 464/664/6128 series.
Incorporates the following:
"DUPLICATOR" . . . A new standard of protected disc backup for the Amstrad. A **very powerful** program that will operate with one **or two** drives. We aren't saying that it will copy every disc available but our extensive tests have been **unable to find one that it won't**. We are sure that the DUPLICATOR is the **best disc backup program available**. Make no mistake many similar utilities are very limited. Future updates will be available as and when necessary at nominal cost.
"MENU MAKER" . . . A tremendously useful utility that allows you to make a menu on all your own discs **completely automatically**. You select which files are to be included on the finished menu and all the rest is done for you.
"RECOVER" . . . This program allows you to recover any files that may accidentally be erased from a disc. Very useful in case of accident.
"EXTENDED CATALOGUE" . . . Gives an extended CAT that includes the start address and length in bytes of both BASIC and machine code files.

ONLY £19.95

WARNING: Do not be misled by other adverts. There is only one "DUPLICATOR", it is the most powerful program of its type.

DOUBLER

HAVING PROBLEMS BACKING UP THE LATEST LOADING TECHNIQUES?

DOUBLER+
Will solve ALL your problems

After **enormous success** on the CBM 64 and Spectrum we now have "Doubler" available for the CPC464. Designed by DRAYSOFT, inventors of the **infamous** "Interface III", this superb unit will operate with **100% success guaranteed**. It requires the use of an auxiliary cassette deck.

Simply plug in the "Doubler" on the expansion port, connect a tape player to it with the lead supplied, LOAD the software supplied in the normal way and you are **ready to start**.

Using digital techniques "Doubler" will create a brand new machine back up of **ALL** software. **100% success GUARANTEED**.

As a bonus **"Speedcop" is included** in the package. This is a superb conventional back up copier that will handle **all normal AMSTRAD loaders**. It has all the usual options like choice of save speed deprotect basic etc.

Solve all your back up problems in one move, remember we guarantee success.

ONLY £16.95

PRINTERS

SHINWA/MICRO P CPA80+

This is our most popular printer. Features include superb NLQ mode (switch selectable), high quality draft mode at 100cps, friction and tractor feed, external dipswitches and EPSON compatibility. Our price includes receipted delivery and lead to suit your micro. Must be the best printer value available

ONLY £189.95

TAXAN KAGA KP810

A chance to buy perhaps the most popular NLQ printer on the market at a very special price. Features include 140cps draft mode and 27cps NLQ, friction and tractor feed, Epson compatible etc. This printer is essentially the same as the Canon PW1080. Our price is fully inclusive of VAT, receipted delivery and lead

ONLY £219.95

3" DISCS

Fed up with paying silly prices?

1–9 £4.25 each
10 for £39.00

Buy 10 and we will put "Excat" on one of the discs for you free of charge.

Disc User? EXCAT

Is a **very useful** utility that will give you the start and end addresses of all files on your discs, including binary. At little more than the cost of the disc that it is supplied on this is a worthwhile purchase. (The rest of the disc can be used as normal.)

ONLY £6.95

All prices include P&P and VAT. Send cheque, Postal Order of Credit Card No. Credit Card order accepted by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders send price as advertised. Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

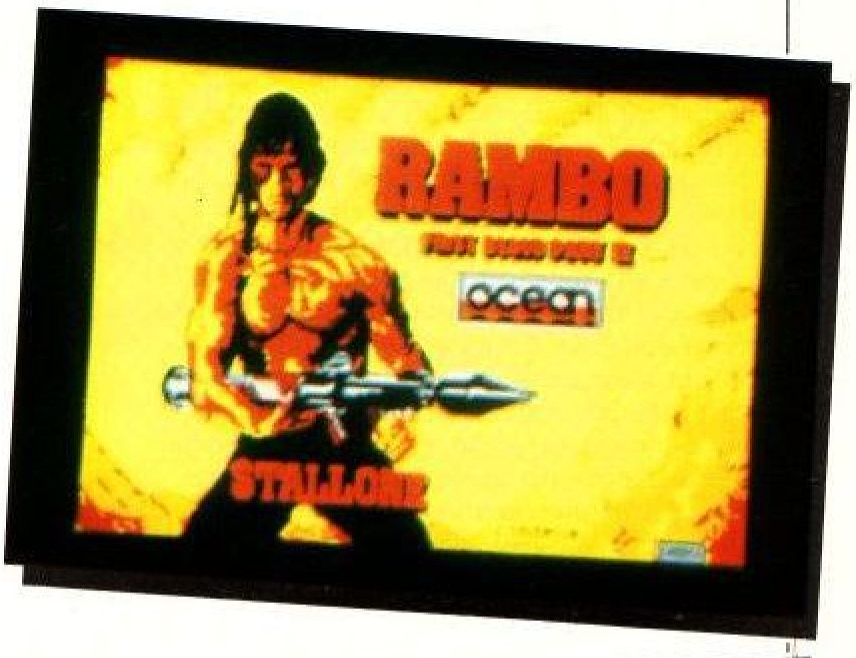
EVESHAM MICROS
BRIDGE STREET, EVESHAM, WORCS., WR11 4RY.
Tel: 0386 41989

MICRO CENTRE
1756 PERSHORE ROAD, COTTERIDGE, BIRMINGHAM.
Tel: 021-458 4564

SOFTWARE REVIEWS

GAME OF THE MONTH

RAMBO





So far, we've had the Rambo film, the Rambo book, the Rambo bow, the Rambo look-alike, the Rambotham, the Rambogram and the cuddly Rambo. Now we've also got an Amstrad Rambo game. Just what we need, eh?

The First Impressions department has a very low score. The simple reason for this is that my 464 – which loads the original Sorcery tape with no trouble – refused to accept the DJL, highly protected, only-just-faster-than-speed-write-one speedloader, even after growling "don't push me" at it. God help people with external cassettes.

The title screen looks pretty much like Rambo, if you think Rambo is worth looking at. The instructions and ubiquitous spot-the-ego high score table are in large stencil-type characters which scroll up and down – at the same time. Not exactly the world's smoothest scroll.

All the action takes place in Mode 0 in an area about one third the size of the screen. The character sprites are about seven pixels high and five wide, moving about erratically. The scenery is fine, with trees and marshes to run around, but it all looks teeny. The small sprites mean that there are plenty of them, nasty Commies come at you from all directions, bullets flying. The smallish screen area means the scrolling is smooth in all four directions.

With a small playing area you have to fill the rest of the screen with massive pictures of Rambo's weapons, scores, life left, last Tuesday's breakfast, and so on. The icon for Rambo's machine gun is five times the size of Rambo.

You move Rambo around his little jungle in search of his friends who are held captive by the Vietnamese. You must then capture an enemy helicopter and eventually rescue all the other prisoners. Rambo is always in the centre of the screen and occasionally will not move in the direction you want him to, no matter how hard you bend the joystick. I think this must be the programmer's way of telling you that you must complete some task before progressing further.

The enemy run all over the place and you can "engage" them with knives, arrows, explosive arrows, machine guns, RPG7s and anything else you may find knocking about. There is some strategy involved – machine guns are noisy, so unless you want to take on a horde of guards stick to using the quiet but deadly knife. To make the game true to the film, you can be shot at many, many times before expiring. A neat trick if you can manage it.

The game unfolds much like this, requiring a bit of thought on what weapons to use in what situations. The instructions are about as helpful as a Japanese printer manual. Unless you are very nimble fingered you need a co-player to switch the weapons for you. The explosive arrows are great as you can blast buildings and trees from quite a distance.

Collectors of the abundant Rambo regalia will love this game – there should be one on the shelf in the Oval office next to Ronnie's copies of Raid over Moscow and Missile Command. It will work on a 6128 (if you can load it). Just the thing for letting out your aggression.

AUTHOR OCEAN

PRICE £8·95

GRAPHICS	17	FIRST IMPRESSION	12
SOUND	14	LASTING IMPRESSION	19
POLISH	18	VALUE	18

COMMENT Turn your straddy into an 8 bit fighting machine

BATMAN

'Sizzling Speedloaders Batman, a game about us".

Well, me anyway. I think it's by the same people as Knightlore".

"Great Bungling Batcode Batman, how did you guess that?

"'Cos it looks like it Birdbrain".

We shall leave the Dynamic Duo to sort things out, and let you read what the Dynamic Uno thought of the game.

The guys responsible for it are Ocean if you believe the cassette inlay and the Ocean non-loader tagged on the front. Inside, the 3D graphics, animation and artistic style reveal it to be a Knightlore clone. And there's only one bunch who can write code like that: Ultimate.

OK batfans, let's tell you what the game is like. With much "da-da-da-da-da-da-da-da Batman" music, a small caped crusader impatiently taps his foot at the top of the screen while you re-define your keys, change the sound effects etc.

He drops down the batpole into the batcave, a huge bat-complex of bat-frustrating bat-rooms to do bat-battle (OK, OK enough of the bat-bits, Ed) with the forces of evil, and generally rough-up the baddies a bit.

Oh yea, the whole point of shifting yourself out of the batcave and down the batpole is to find the bits of the batcraft. This has been sawn up into bite-sized pieces and distributed all over the labyrinth. Fortunately, when you find the pieces they are transported to a secret location and stuck back together again with hyper-intelligent batglue.

You can wander around the labyrinth, move pieces of junk, pick them up, put them down, and jump up and down on them in frustration. Standing batidle causes the more prominent half of the Dynamic Duo to place hands on hips and tap foot on floor. Quaint. You can do this for as long as you like since there is no time limit on the game.

After a brief time playing, I snuffed it. A bitter disappointment. Not a KAPOW, PAFF, SPLAT or ZONK! in sight, just the usual twittering and cloud of smoke as per Knightlore.

Strike two. After wandering around again, a little Robin dropped out of the sky. I rushed forward to comfort the old fellow and he disappeared, leaving a counter going at the bottom of the screen. This makes you invulnerable for a while.

The mini-crusader can bestow a number of gifts upon you. You can get extra bounce (just like the fabric conditioner adverts), the invulnerability, and something to speed you up, like the winged boots in Nightshade.

There are items to be found in the maze – rucksacks, utility belts, super jump-boots etc. All highly useful devices, but you've got to find them first. In the Ultimate 3D wander around rooms games you start with the ability to pick things up and put them down and with the ability to jump.

Batman is not quite as flexible and you need to find a batpouch which will let you carry things and bat-boots so that you can jump. This must be the cheapo version of the bat pouch because it won't let you leave the room with an object (as recommended by all store detectives).

Eventually you come across all the batbits and can get down to the real job of assembling the batcraft. The game is huge, there are 150 rooms to explore with the seven pieces of the batcraft extremely well hidden.

This is a game which needs mapping, even when I had found all the pieces it took me 20 minutes to find my way back to the assembled batcraft. Rooms that don't seem to go anywhere can be misleading, a good rule is that if you find a room full of moveable objects they are there for some reason, some turn into large double or triple rooms as you reach the wall.

Some rooms don't have a floor so you can fall down to the level below, some don't have a ceiling allowing you to jump up to the level above. You can move between floors by jumping – your cape billowing behind you or by climbing onto a lift. The lifts only go up and take the form of moving blocks or turtles.



The sprites are beautifully designed – more shades of Ultimate. Some of the puzzles are fiendishly difficult – I spent three hours trying to get two elephant feet balanced on a moving lift. One room requires you to stack four objects on to a staircase so that you can jump out.

One part of the Batcraft is hidden from view and it was only through a desperate attempt to play with all the objects that I managed to find it.

In some rooms there are magic re-incarnation stones – if you touch one you can start your next game from that position. It would be better if you could save that position to tape, Even when you have solved individual puzzles there is a sense of satisfaction to be gained from executing the movements a second time around.

If there is any room for criticism the game is too difficult, and like most of the Ultimate offerings once you have completed it you don't want to rush back for another go. The Batman tie-in would have been better if there had been a proper Robin wandering around and if the nasties had included a Penguin, Joker or Riddler.

When you have found all the bits you go through a particularly tortuous route to your batcraft. You then find it and run off with it, to get fined for reckless driving in Gotham City.

And now some highlights from the game: WHAM! KAPOW! BLAT! Holy Smoke Batman!

I think Batbashers will like this one.

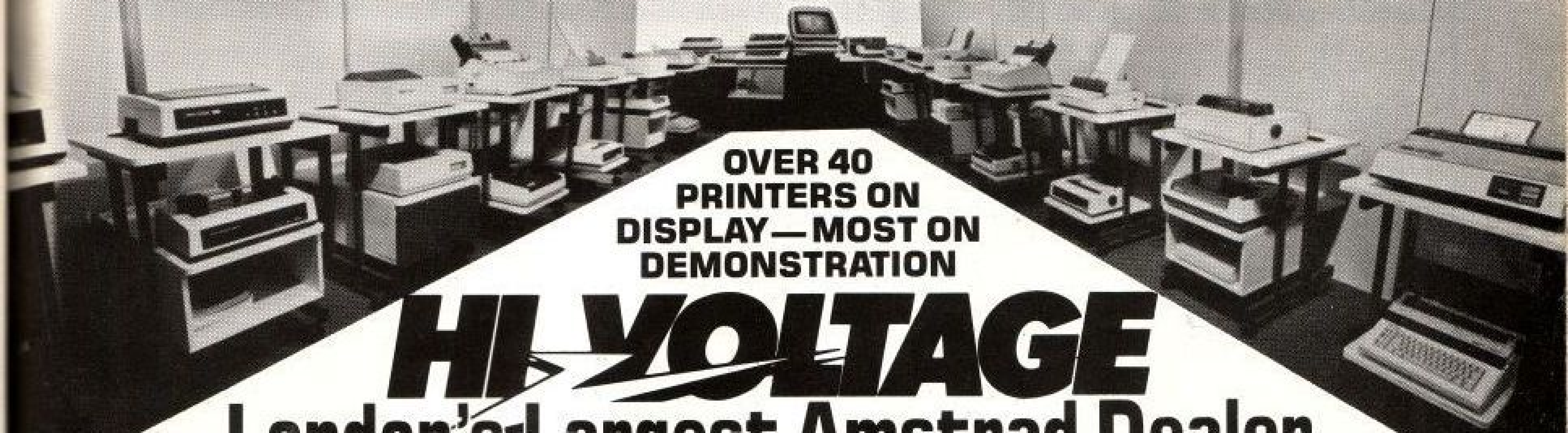
AUTHOR: OCEAN
PRICE: £8.95

GRAPHICS	18	FIRST IMPRESSION	16
SOUND	16	LASTING IMPRESSION	20
POLISH	20	VALUE	19

COMMENT: Superhero, superfun.

LONDON'S LARGEST DISPLAY OF PRINTERS MONITORS COMPUTERS AND PERIPHERALS

DON'T TAKE A CHANCE **—COMPARE BEFORE YOU BUY**



OVER 40 PRINTERS ON DISPLAY—MOST ON DEMONSTRATION

HI-VOLTAGE

London's Largest Amstrad Dealer

NEW PCW 8512
512K RAM
2 Disk Drives
£494.90 + VAT

PCW 8256
256K RAM
1 Disk Drive
£394.90 + VAT

6128 Wordprocessor
CPC6128 Green Screen, Quen Data DWP1120, 20 c.p.s. Daisy Wheel Printer, Printer Cable, Tasword 6128 WP Disk
£429.90 + VAT

South London's best range of Amstrad Games and Educational Software — off the shelf

ALL PRICES EXCLUDE VAT
All equipment fully guaranteed — Credit terms available

OPEN MONDAY-SATURDAY 9 AM-6 PM

OPEN MONDAY-SATURDAY 9 AM-6 PM

DOT MATRIX PRINTERS

Brother HR5	£78.21
Brother M1009	£130.40
Brother EP44 Typewriter	£189.90
Brother 1509 NLQ	£419.90
Citizen 120D NLQ	£151.90
Epson P40 Thermal AC/DC	£49.90
Epson LX80 NLQ	£199.90
Epson GX80 NLQ	£199.90
Epson FX85 NLQ	£369.90
Epson FX105 NLQ	£479.90
Epson LQ800 NLQ	£499.90
Epson JX80 Colour	£449.90
Canon PW1080A NLQ	£269.90
Canon PW1156A NLQ	£365.90
Panasonic KP1091 NLQ	£255.90
Oki-Mate 20 Colour	£199.90
Shinwa CPA80 plus NLQ	£159.90
Micro P. 165 NLQ	£199.90
Seikosha GP50S (Sinclair)	£69.90
Seikosha GP500A	£89.90
Seikosha SP1000 NLQ	£199.90
Seikosha SP1000 VC NLQ (CBM I/F)	£173.90
Seikosha BP5420 (420 CPS)	£895.90
Smith Corona Fastext 80	£110.90
Star SG10 (IBM) NLQ	£199.00
Star SG10C NLQ (CBM I/F)	£199.90
Star SG15 NLQ	£329.90
Star SD10 NLQ	£329.90
Star SD15 NLQ	£409.90
Star SR10 NLQ	£399.00
Star SR15 NLQ	£499.00
Kaga Taxan KP910 NLQ	£379.90

DAISYWHEEL PRINTERS

Brother HR10	£249.90
Brother HR15 (P)	£315.00
Brother HR25	£609.00
Brother HR35	£739.90
Daisystep 2000	£219.90
Juki 6000	£199.90
Juki 6100	£299.90
Juki 2200 Typewriter P or S	£229.90
Commodore DPS1101	£242.60
Uchida DWX 305	£199.00

All popular interfaces, cables, etc. available from stock. Custom cables made to order.
Let our experts match your computer to the printer of your choice.
Printers — All models parallel-centronics interface Serial RS232C available et same or slightly higher prices.

PCW8256/8512 (Joyce)

Hardware

PCW8256	£394.90
PCW8512	£494.90
FD2 1MB Second drive	£149.90
CPS Serial/Parallel I/F	£59.90
Nightingale modem + comms. s/w	£199.90
Sage chit chat modem plus E. Mail s/w	£173.87
Sage chit chat modem plus Prestel s/w	£173.87
Maintenance contract for 8256	£36.00
Maintenance contract for 8512	£45.00

Software

Sage accounts	£86.90
Sage payroll	£60.83
Sage invoicing & stock	£60.83
Sage accounts & payroll	£130.30
Sage accounts & payroll & invoicing	£173.87
Pocket wordstar WP	£86.90
New Word WP	£60.83
Cardbox database	£86.90
Delta 1.25 database	£86.90
Sage database	£60.83
Cracker spreadsheet	£43.43
Supercalc II spreadsheet	£43.43
Scratch pad plus spreadsheet	£60.83
DR graph	£43.43
DR draw	£43.43
Touch 'n' Go typing tutor	£21.70
Locoscript tutorial	£8.65
PCW8256 tutorial	£8.65

CPC6128/464 (Arnold)

Hardware

CPC464 Green Monitor	£169.56
CPC464 Colour Monitor	£252.13
CPC6128 Green Monitor	£252.13
CPC6128 Colour Monitor	£339.09
DD1 Disk drive plus cont.	£139.00
FD1 2nd disk drive	£86.90
Cable for 2nd drive	£6.95
Printer Cable	£9.99
MP2 RF modulator	£26.00
RS232 I/F	£43.43
JY2 joystick	£13.00
DK'tronics 256K silicon disk	£86.90
DK'tronics 256K Memory expansion	£86.90
DK'tronics 64K Memory expansion	£43.43
DK'tronics Speech synth (cass)	£26.00
DK'tronics light pen (cass)	£17.39
AMX mouse	£60.87
Graphpad II	£59.95
Nightingale modem plus commstar plus RS232 I/F	£149.90

Software	Cassette	Disk
Tasword 464 WP	£15.08	£18.87
Tasword 6128 WP	–	£18.87
Arnor Protext WP	–	£23.43
Arnor Maxam assem (also available on ROM & Cartridge)	–	£23.43
Beebug Soft Rembrandt	£12.13	£14.74
Mini Office II	£13.00	£17.35
Laserbasic	£13.00	£17.35
'C' language	£30.39	£34.74
Supercalc II	–	£43.43
Sage accounts	–	£86.90
Sage payroll	–	£60.83
Mastercalc	£21.70	£26.04
EasiAMScalc	£17.35	–
Master file	£21.70	£26.04

Also full range of accounting packages on cassette.

PRINTER RIBBONS Single prices, deduct 10% for 5+

Brother HR15 Corr	£2.90	CBM 1525	£4.50	Kaga KP810	£5.90
Brother HR15 MS	£5.50	CBM DPS1101 MS	£3.80	Mannesman MT80	£6.50
Brother HR5	£2.90	Daisystep 2000	£3.90	Seikosha GP50	£6.90
Brother EP44	£2.90	Epson MX/RX/FX 80	£3.50	Seikosha GP100	£4.50
Brother M1009	£3.90	Epson 100 Series	£4.50	Seikosha GP500	£6.90
Canon PW1080A	£5.90	Juki 6100 SS	£1.90	Seikosha GP700	£18.50
CBM 801	£6.90	Juki 6100 MS	£3.80	Shinwa CP80	£6.50
CBM 802/1526	£6.50	Juki 2200	£3.80		

Mail Order + Export Hot Line Phone 01-686 6362

Delivery by Securicor (4 day) please add £5.00 + VAT per item.
Delivery by Securicor 24 hour please add £9.50 + VAT per item.

ACCESS VISA

Send off or order by 'phone quoting your Access, Visa No. 'Phone 01-686 6362. Immediate despatch on receipt of order or cheque clearance. Or you can Telex your order on: 946240 Attn 19001335

ALSO VAST RANGE OF DISK DRIVES, JOYSTICKS, DISK BOXES, INTERFACES, SHEETFEEDERS, ETC.

HI-VOLTAGE 53-59 High Street, Croydon, Surrey CR0 1QD.

Prices correct at copy date. Subject to change without notice due to currency fluctuations etc. E. & O.E.

ROMANTIC ROBOT present

Where can you find a unique combination of arcade and adventure played within an intricate maze of over 250 hi-res colour screens with superb graphics and animation, stereo music and sound effects, dozens of creatures and objects including flying spider invaders and lurking killer spiders, flobs from outer space, intelligent ants, erratic wasps, moving floors and rising heads, lifts in bottomless shafts, various keys to various doors, spaceships, acid drops and acid helmets, ant sprays, moneybags, parachutes, energy replenishable with milkshakes, bowls of cherries, iced buns, apples, cups of tea, cornflakes and ice-cream?

All this and much more in the greatest ever maggot marathon, in the combat against time and fellow maggots where there are many routes to the finish, where you will go through Hell, Dungeons, Garden, Mansion, Underground, Basement, Scrubland and Planet Surface, where each object can play a vital role, where the hazardous labyrinth race requires all your arcade skills, quick fingers, fast thinking, perfect timing, problem solving logic, orientation and also a good sense of humor. ALL THIS AND MUCH MORE in the

Wriggler



'It is very different from anything I have seen before.' Crash

'The grahics and sound are excellent and the game is totally addictive.' Computer & Video Games

'Great game, good music, well recommended.' What Micro

'The graphics are excellent.' Computer Gamer

'Wriggler is a totally original game.' Crash

'The game is crazy, the graphics are a delight.' PCN

'The range of problems and the 265 locations lift this well above the norm. A winner.' PC Weekly

'If you've any sense you'll order your copy now.' PCN

'Well worth buying.' ZX Computing

'The graphics, animation and choice of colour are superb.' Crash

'One of the best games for any machine I've seen for very long time.' PCN

'Overall, a very good game worth buying.' Crash

'The amount of different screens makes the game very playable, enjoyable, and more importantly, addictive. I would recommend this to any child between the ages of 8 and 80.' Amstrad User

'Graphics 9/10 Sound 9/10 Value 10/10 Playability 10/10' Computer & Video Games

'Wriggler is one of the most attractive arcade adventure games I have seen for a very long time.' AMTIX

'The music is excellent' AMTIX

Plus a bonus: Original music to wriggle to the Wriggler

THE MOONS OF JUPITER

SPECTRUM tape £ 4·95
AMSTRAD tape £ 7·95
disc £ 11·95

Available from Boots, W.H. Smiths, TBD, Thorn EMI, Centresoft, GEM, R&R, Vanguard Leisure, Warwick Distribution, Micro Dealer, and any good computer stockist or direct from ROMANTIC ROBOT, 77 Dyne Road, London NW6 7DR or phone 0892 834783

A POWERFUL DATABASE FOR THE PRICE OF A GAME

KWIKFILE

£7.95 TAPE
£11.95 DISC

"... if you want to perform cross file or field calculations then MASTERFILE cannot help. This particular area seems the strength of KWIKFILE. ... a very clever programme ... worth every penny ...." AMTIX!

A low price database, designed for fast and easy manipulation of datafiles. Features include: –

- Fully menu driven
- Up to 18 fields per record
- Alphalnumeric sort any field
- Up to 28 characters per field
- Up to 22,000 bytes per file
- All fields variable length
- Reports with/without field names
- Cross field calculations
- Fast search (by embedded key) which displays all records containing required data on screen whilst you view individual records
- Print any fields in any order, or lists of all (or any) records, or print labels, (either on screen or any Epson compatible printer)
- You can change the name or calculation formula of any field or add an extra field.
- Totals of all fields available
- Menu driven file catalogue. (Disc version only)

AND NOW THESE EXTRA FEATURES AT NO EXTRA COST!

- File splitting
- File merging
- File clearing
- File renaming

Tape £7.95 Disc £11.95

Church

This programme, based around KWIKFILE, has the facility to print out the necessary Electoral Roll report, plus calculate all the sidesman rotas, flower rotas, communion plate rotas, etc and to print the desired quantity of lists of each, ready to send out to those on the lists. (Done in minutes instead of hours or days). It will hold records of up to 200 parishioners. tape **£12.95** disc **£16.95**

ALL 464/664/6128 compatible. NOT PCW8256

M.P.S. Tollgate House, Trentham Road, Butterton, Newcastle, Staffs. ST5 4DY.
Telephone: (0782) 641770
Please add £1.00 for overseas orders

DISCOUNT SOFTWARE

CHECK OUT THESE PRICES

GAMES

Elite	12.95
Spitfire 40	7.50
Skyfox	7.50
Hypersports	6.95
Yie Ar Kung Fu	6.75
Nightshade	7.50
Strangeloop	6.95
Theatre Europe	7.,75
Battle of Britain	7.75
Lord of the Rings	12.95
Matchday	7.25
Battle of the Planets	7.25
Starion	7.75
Bruce Lee	7.95
American Football	7.95
Match Point	6.75
Steve Davis Snooker	6.25
Quiz Quest	4.25
Arabian Nights	4.25
War Lord	4.25
Message from Andromeda	3.95
Chopper Squad	3.95
Chimera	3.50
Formular 1 Simulator	1.95
Tau Ceti	7.50
Tornado Low Level	6.25
Cyrus II Chess	7.95
3D Grand Prix	7.75
Tim Loves Cricket	6.95
Fighter Pilot	6.95

BUSINESS & TUTORIAL

Guide to Basic 1 or 2	16.95
Concise Basic Spec	10.95
Concise Firmware Spec	16.50
Concise Firmware DDI	8.75
Masterfile	20.95
Masterfile Ext (MPX)	8.75
Mastercalc	16.95
Mastercalc Ext (MCX)	8.75
Tasword 464	15.95
Tascopy	8.95
Tasprint	8.95
Hisoft 'C' Compiler	30.50
Pascal (Hisoft)	25.95
Font 64	7.25
Screen Designer	10.95
Mini Office II	12.95
Pitman Typing Tutor	7.95
Home Accounts (Gemini)	16.95

HARDWARE

MP2 Modulator	27.50
PL1 Printer Lead	8.50
DMP2000 Ribbon	5.95
Quickshot II	8.95
JY2 Joystick	9.95
Single Disc (hard case)	4.25
Box 10 Discs (hard case)	38.50
DK Tronics Light Pen – ROM	26.95
DK Tronics 64k expansion	45.95
Elec Studio Pen-Cass	17.95

DISC BASED

Wriggler	9.95
Steve Davis Snooker	10.95
3D Grand Prix	11.25
Sorcery +	11.50
Tornado Low Level	11.50
Screen Designer	16.25
Devpac Ass/Diss	24.95
Hisoft 'C' Compiler	34.95
The Knife	11.25
The Torch	11.25
Rembrandt	14.75
Tasword 6128	19.95
Tasprint	10.95
Tascopy	10.95
Taspell	13.75
Masterfile	23.95
Masterfile Ext	12.75
Mastercalc	23.95
Mastercalc Ext	12.75
Mastercalc 128	31.95
Mini Office II	17.50
Home Accounts (Gemini)	22.50

CP/M SOFTWARE

Devpac 80 (Hisoft)	35.95
Pascal 80 (Hisoft)	35.95
Supercalc 2	44.95
Touch & Go	22.50
Brainstorm	44.95
Cambase Database	44.95

Arnor	Cass	Disc	Eprom	AD2 Cartridge
MAXAM (machine code ass/dis)	17.75	22.95	34.95	44.95
PROTEXT (word processor)	17.75	22.95	34.95	44.95
UTOPIA (utility rom)	—	—	25.75	36.50
PROSPELL (spelling checker)	—	22.95	31.95	—
4 WAY ROM CARD	—	—	13.95	—
664 CONNECTOR	—	—	5.00	—

ALL PRICES INCLUDE POSTAGE, PACKING & VAT IN THE UK
OVERSEAS ORDERS WELCOME – PLEASE WRITE FOR EXPORT PRICES
WRITE FOR A FREE PRICE LIST – GET ON OUR MAILING LIST
PLEASE SEND CHEQUES/POs TO:

M.J.C. SUPPLIES,
'Scoja', London Road, Hitchin, Herts SG4 9EN.
Tel: (0462) 32897 for Enquiries/Orders – 24hr ANSWERPHONE

OBSIDIAN

I'll bet you, like me, often lie awake at night wondering just what "Obsidian" means. The truth can now be told – it's a noun meaning glassy volcanic rock. Who said this magazine was full of mindless games reviews?

It's also the name of the latest release from Artic. The connection between the two is that the game is set inside a space station which is itself set inside a large asteroid which is no doubt made of glassy volcanic rock – simple when you know.

Unfortunately, the plot on the cassette inlay isn't quite so simple. There's something about you having to reactivate and reprogram the space station and get off before you're crushed by the gravity force of a nearby black hole. Don't spend too long trying to figure the plot out, once you're playing all this rather pales into insignificance.

In a Sorceryesque fashion your task is to use the right objects to get past the various things that block your way. Once the doorways and force fields are opened up you can get on with starting the engines and returning several coloured crystals to their right positions. I won't tell you how or where – the whole object of the game is for you to find out.

I don't think it would be giving away too much to say that the first problem you are faced with is a laser that you cannot pass beyond. In order to switch it off you require the laser pass. Unfortunately there is a barrier between you and the pass. To disable this you first need the energy key.

This is just the first of many problems to be solved in the game. Most require trying the various objects until you find one which does the trick. These are each kept in little boxes suspended from the ceiling. To pick one up you hover below the box with your head touching it and press the fire button.

You can only carry one object at a time, so if you are already carrying one, it will be exchanged for the one being picked up.

Movement about the screen can either be made on foot or more quickly using your jetpack. However energy is used up by doing this and when it runs out the inevitable happens. You do have quite a generous five lives to start with, but you definitely need all of them and it will be many moons before you can return all the crystals, start the engines and leave the ship. In a similar way to the cauldrons in Sorcery there are pads dotted about the place that replenish your energy when you stand on them. The game is full of nice touches, like the teleport that will take you to a small complex of rooms in which one of the important crystals is kept. There is also a room in which a crystal is held and can only be taken by replacing it with the correct object.

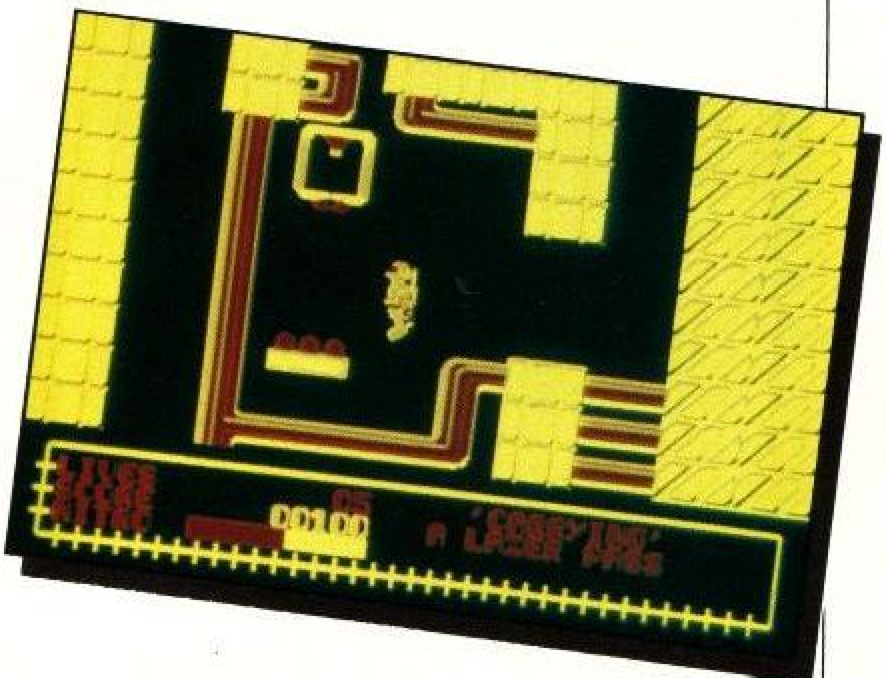
This variety in the puzzles to be solved – even though they really all involve only the movement of objects from one place to another – makes this an infinitely playable game.

All the screens are in Mode 1 and although this limits the colours available, good use has been made of stippling and shading to make them very detailed and attractive. Considering the number of screens, the programmers have done well to be able to get so much detail into each one.

The number of moving hazards is just right to give the game a good level of competitiveness, though there is a passage with a deadly floor that has to be repeatedly passed over. This makes the game just a little tricky unless you have infinite lives (keep your eyes on the Hairy Hacker's hidey hole).

One thing to watch out for is a brick that looks like it is inscribed with a flashing wine glass in the ceiling of one of the passages. (Hint: I guess it is a "vapouriser"). Unless this is given the correct object to disable it, it will take anything you are carrying – you might lose an object that is vital for the completion of the game.

Talking of which, Obsidian has one of the most satisfying endings I've come across. The screen you are presented with is perhaps the best in the game but that's all I'll say. If you want to see it you'll just have to go out and buy the game. In fact I would highly recommend you to do this anyway.





Obsidian has the makings of a classic (like Sorcery or Knight Lore). The graphics are great, the puzzles are intriguing and the ending is definitely worth playing for – I can't see how anyone has any excuse not to buy this one. It works with either joystick or keyboard (which is user definable) and perhaps most importantly, it works on all machines, the 464, 664 and 6128.

AUTHOR: Artic

PRICE: £7.95

GRAPHICS	17	FIRST IMPRESSION	16
SOUND	9	LASTING IMPRESSION	18
POLISH	19	VALUE	18

COMMENT: Puts Artic back on the map


FORBIDDEN PLANET
Design Design
2112 AD
AMSTRAD
DISC £14.95
CASSETTE £7.95
Selected Design Design titles are available from:-
WOOLWORTH
WHSMITH
John Menzies
Boots
COMET
and all leading software stockists, or direct from:-
Design Design Software.
125 Smedley Road.
Cheetham Hill,
Manchester M8 7RS.
Trade enquiries:- 061-205 6603
NOW AVAILABLE
WORKING BACKWARDS
FOUR GREAT HITS ON ONE DISC
DARK STAR, ON THE RUN.
HALLS & TANK BUSTERS
£14.95
Prices include p & p

FRANKIE GOES TO HOLLYWOOD

I know there will be those who disagree but I can't help thinking that Frankie Goes To Hollywood were very much a one hit wonder – where are they now?

So at first sight it seems that the new game from Ocean has rather missed the crest of the wave of euphoria surrounding the group. I don't think this is going to be a major problem though.

The game is just so good that it doesn't need a tie-in with an outdated pop group – I'm sure it will sell on its own merits. The consensus of opinion among people in our office when first looking at the game was "Yeah, so what's so great about it"?

But anyone who takes a little time out to actually play the game will soon find that far from being the dull game its initial appearance might suggest, Frankie is full of interest, with new things to be found around every corner. "But what's the object of the game"? I hear you groan. Well, ultimately the aim is to get to the centre of the pleasure dome. But it ain't gonna be easy – there are many tasks to be completed before you achieve this.

Once loaded – it's OK Simon, I'm not going to moan about Ocean's diabolical loader this time *(Thanks. Ed)* – you find yourself on the road outside a pretty ordinary looking row of terraced houses. Your character takes the form of a rather non-descript, featureless teddy boy lookalike. He can be controlled left and right with a joystick or the keyboard (though using a joystick is infinitely preferablè). He can also enter the houses by lining him up in front of the door and pushing the joystick forward. It is sometimes a bit tricky to line him up.

Once into the hallway, you will see two or three doors leading off to the front room and kitchen of each house. There may also be a cupboard with a useful piece of clothing. As you move about you can point at objects by a combination of joystick movement and pressing the fire button. Pointing at a chest or cupboard, for instance, will cause a window to expand from the centre to fill the playing area of the screen. Inside will be found lots of useful objects. Eight objects may be carried at any one time.

The houses are full of furniture and utilitarian household goods – radios, food mixers, paintings and so on. You may find that pointing at one of these opens up a new type of window. This is one of the entrances to the pleasure dome which consists of eight completely different but highly addictive arcade type games.

For example, in one game you must shoot a number of heads as they pop up before you. In another, you must bounce a moving symbol off your body to deflect it on to a flashing spark. Success in anything and everything in the whole game rewards you with addition to one or more of your four aspects of personality shown with bar graphs at the side of the screen. When they all reach the top, each in turn spells one of the letters of the word BANG.

You also accrue pleasure points and are rated as a percentage of a "real person". Achieving 99 per cent is the ultimate goal as this will allow access to the centre of the pleasure dome. People who are 100 per cent real obviously don't play computer games.

While in any of the games within the pleasure dome doors are to be found about the place. Going through one of these takes you into the corridors of power, a three dimensional maze that connects the various aspects of the game. The doors found in this maze either lead to one of the arcade type games or to one of the rooms back on the housing estate. There are more than just the initial line of four houses to be found. travel between the groups of four is made through one of the doors you find in the houses.

There are so many things to do, games to play and problems to solve that there just isn't room to even list them here.



Besides, I wouldn't want to spoil any of the puzzles for you.

One thing I can tell you about is the murder you will have to solve. Entering a particular sitting room you will find a body sprawled across the floor. You are told to find the clues and once you've made your mind up return to this same room to identify the killer.

From then on, entering most rooms will also produce a clue associated with that room. The whole concept is very similar to a game of Cluedo, where clues are given one by one and you must cross-reference the various bits of information until you can finger a suspect. You then return to the scene of the crime. A window opens up, you step in and are then presented with a list of all the suspects.

Picking the correct one boosts your pleasure points and will also produce the remark "Well done Sherlock". Failure, unfortunately means you must restart the game – you don't get a second chance – so you must be pretty certain of your suspect. As far as I can tell, the murderer and clues are jumbled up each time the game is played so it won't lose its appeal after the first time you solve it.

I can't even begin to tell you how good I think this game is – as a rather cynical games reviewer I am lucky if a game holds my interest for more than a couple of hours. But this game might keep me going for weeks as there is just so much to do. There is quite a lot of brain work involved, to solve the Cluedo mystery, work out which objects go where, the way to play each of the eight arcade sections and map the 3D maze section to name but a few.

I guess that this game may appeal to the sort of person who likes both arcade and adventure type games rather than the mindless joystick blaster type or the confirmed Wizard of Betlgeuse complete with gold coins and goblin. Though, having said that, I must say that I fall into the first of these categories and I thought the game was brilliant.

It would have been nice if a little more detail could have been afforded to our hero and the minor problem of lining up for door ways can be just a teensy bit niggling. However, overall, I think this game must get a definite 11 out of 10.

AUTHOR OCEAN
PRICE £8.95

GRAPHICS	17	FIRST IMPRESSION	12
SOUND	16	LASTING IMPRESSION	18
POLISH	18	VALUE	17

COMMENT Frankie says.....

MOON CRESTA

In the bad old days before home computers had more than 4k RAM good computer games could only be found in arcades, cafes and the local kebab take-away.

In those early days there were only a few rules – left, right or shoot. The complex controls of Defender had not been contemplated. Even the addition of thrust, the fourth button on an Asteroids machine, was seen as adventurous – and no-one used the hyperspace.

Those were the days – every game cost 10p and all the machines were set on the easy levels. Now you can pay 50p for one game of Space Harrier.

One of the first major advances was colour. No longer did the aliens only go green when they reached the bottom row, they went blue, red, scarlet, pink, white – whatever colour you wanted anywhere on the screen.

One of the first of these colour games was Moon Cresta. This represented a big advance in computer games. When you beat the first kind of alien there was another, totally different type ready to get you. The Amstrad version of Moon Cresta is amazingly faithful to the original, thanks in no small part to Incentive having a Moon Cresta machine of their own – for research, of course.



As you go through the levels the game changes. The early aliens swoop slowly but unpredictably. Later foes are more predictable but very much faster – you need to be quick on the trigger to catch them before they run into you.

About half way through the cycle of sheets there is a docking sequence where you must line up your ship with a larger ship. If you should get killed you are reincarnated in the form of the later ship. Once you have docked you have the fire power of both ships at your disposal, and people thought Galaga was original when you could have two ships on the screen at a time.

The ultimate in status is to get all three ships docked, giving you the ability to have five bullets in the air (space?) at once. In the cafe where I used to play we had a table top machine – the kind where players sat either side. The players who wanted to show off would tweak the joystick with their knees and dock without using their hands.



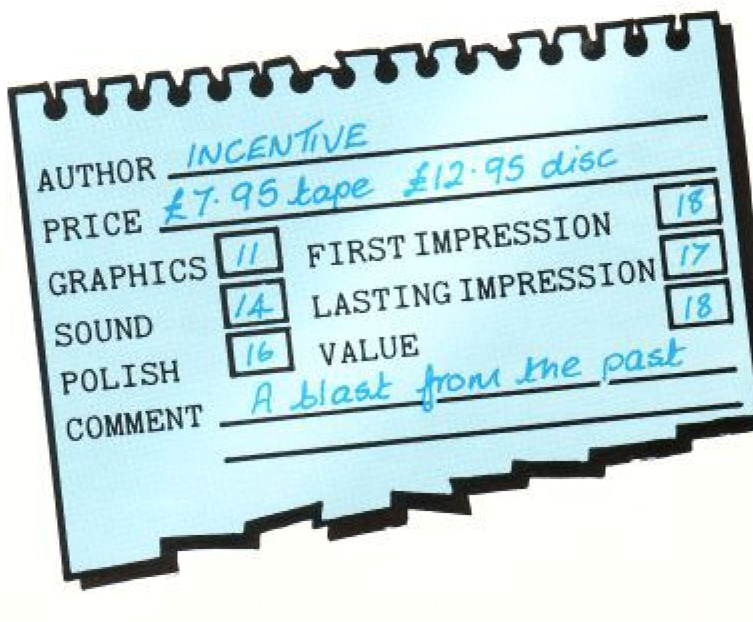
Here the Incentive conversion seems to lack something because the ships move in much larger steps and you don't need to be nearly as accurate to elicit the message: "Right on!" from your 'straddy.

Moon Cresta used a screen on its side. To avoid your having to turn the Amstrad monitor through 90 degrees Incentive have done some very clever things with the 6845 video controller. This gives the screen more rows of fewer columns, just the right appearance for the game. There is some clever interrupt handling going on to print the scores in Mode 1 while the rest of the game is in Mode 0.

All in all this is a very competent conversion. However Moon Cresta is a very old game – programs to the standard of Batman or Tau Ceti would have astounded the programmers who wrote Moon Cresta.

This is a game from the long forgotten age of left, right, fire. If you enjoyed Moon Cresta in those days you will still enjoy it now, but as a new release it shows its age. Maybe it will be very successful – after all, Zalaga was a hit on the BBC Micro and that is just a simple blast-em – but I would only buy the game for sentimental reasons.

There is something strangely addictive about Moon Cresta, and there is a competition to win a real arcade machine if you can score more than 30,000 points.



aries

Aries Computing Limited

Quality Software
Established 1976

HiSoft – £12.95
The Knife A powerful disc sector editor.
The Torch CP/M made easy – interactive tutorial.
ClassMinder Interactive Tutors – £12.95
OLP **CSE/O level physics** revision, a FULL disc (both sides) of brilliant interactive instruction and tests, ESSENTIAL for this year's exams.
CMMS Learn about **MSDOS** using your Amstrad.
The Authority – £39.95
Now write your own professional disc based interactive training scripts with this powerful **authoring language.**

Please specify model when ordering
Inc VAT & p&p in UK
65a High Street, Stevenage, Herts, SG1 3AQ. Tel: 0438 69960

TURN YOUR INVENTIONS INTO CASH

Micro Peripherals Limited is one of the worlds most successful peripheral distributors. Within our expansion program we have our own design team and production facilities.

We need more products to meet the demands of customers throughout the world. If you have designs or have ideas for an exciting hardware add-on for Amstrad, Atari, Commodore or Sinclair computers we would like to hear from you.

We are ready to buy good ideas for cash/royalties and maybe even offer you a full-time job to help you develop your ideas further.

So why not call/write to me now: **Gordon McDowell, Micro Peripherals Limited, Unit 3 Intec Wade Road, Basingstoke RG24 0NE. Tel: 0256 473232. Telex: 859669 MICROP G.**

Mastering the AMSTRAD PCW 8256/8512

The new book for AMSTRAD users, by John Hughes

- Clarifies and complements the user manual
- Teaches you to master the basic techniques of word processing, and its most advanced uses
- Covers Locoscript with an entire, separate section on New Word
- Gives you a thorough introduction to using databases, spreadsheets, accounts packages and CP/M
- Helps you make the most of the software packages currently available
- Published March 26th 264 pages £8.95

Please order from your bookseller. Alternatively, please phone us with your credit card number on (0243) 829121; or send a cheque to John Wiley and Sons Ltd., FREEPOST, Baffins Lane, Chichester, West Sussex PO19 1YP.
Price includes postage and packing.
Allow 14 days for delivery.

Published by Sigma Press; distributed by John Wiley & Sons Ltd

PRE-SCHOOL, PRIMARY, JUNIOR

ARC Education

By a Teacher. Tested by Pupils
Approved by Parents and Schools
For Home use on all CPC models

Each set contains SEVEN Programs
£5.50 Per Set
Choice of more than FIFTY programs.
SAE for Lists to:
ARC, 53 Bentley Street, CLEETHORPES, Sth. HUMBERSIDE DN35 8DL. (0472) 699632

PCW 8256
£399
+ VAT

BRANDED DISCS
10 Pack 3" = £38
5 Pack 3" = £20
(Inc. VAT P&P).

CICA (IMPEX) LIMITED
287 Caledonian Road, London N1 1EG.
01-700 4004

VISA

"GAC is so easy to grasp that within minutes of loading you feel the urge to sit and write something." TONY KENDLE AMSTRAD USER

"A very clever and friendly piece of software." KEITH CAMPBELL COMPUTER & VIDEO GAMES

"Offers the unskilled programmer the chance of providing a really professional game." STEVE COOKE, YOUR COMPUTER

"The most astounding program I've ever encountered on an eight bit machine." "98% overall." AMTIX ACCOLADE AWARD WINNER

THE GRAPHIC ADVENTURE CREATOR

"Will change the face of the adventure software market" AMSTRAD ACTION

Please rush me, for my Amstrad CPC Computer THE GRAPHIC ADVENTURE CREATOR
☐ Cassette £22.95 ☐ Disk £27.95
I enclose Cheque/PO for £________ or please debit my
Credit Card No________
Name________ Address________

"Reason enough to buy an Amstrad!" TONY BRIDGE, POPULAR COMPUTING WEEKLY

INCENTIVE SOFTWARE LTD. **54 LONDON ST., READING RG1 4SQ**

N.O.M.A.D.







The first thing that struck me about N.O.M.A.D. from Ocean was the size of the box it came in. Why, I wonder, have they used a double cassette sized box? Perhaps a job lot left over from a previous title?

One of the other great unsolved mysteries of life the universe and everything is why Ocean attempt to ruin all their titles, both good and bad, by using a dreadful loader that doesn't always work even on the 464 and virtually guarantees that anyone with a 664 or 6128 will never see one of their games working.

It's all very well using speed loaders, but this particular one doesn't seem to give much speed advantage anyway. I eventually got the game to load into a 6128 after the fourth attempt with the second tape recorder. Could I suggest that if there must be a quick loading version, there should also be a firmware loading version on the other side.

If the idea is to protect tapes from being copied, then I'm afraid it's a sad fact that we have yet to find a tape that cannot be copied by a tape to tape machine.

Anyway, I did eventually get the tape to load, so what was it like? The predictably daft and boring spiel on the inlay tells us that your task is to guide your Nomad space craft to the centre of a rogue asteroid where you can deal, single handedly, with the heinous baddy responsible for all the ills of the world.

The craft you control to attempt the mission is a bit "asteroidesque", control being rotate left/right and forward/backwards thrust. There are a couple of guns that fire alternately (ensuring that you are never able to aim exactly because you've forgotten which gun fired last time).

Among the "playing features" listed on the inlay are inertia/momentum. This means that your craft takes a bit of time to get up to speed and is equally ponderous when slowing down. It also means that controlling the craft isn't as easy as it could be.

Most of the other "features" are actually a list of the various obstacles that are likely to deter you. There are multicoloured globes that shoot bullets out in random directions which can be removed by shooting at them. There are also guns set into the walls that fire shells across your path – usually at just the most annoying time. These are best dealt with by shooting diagonally to destroy them before crossing the path.

Perhaps the most annoying thing about the game is that every time your current ship is written off you are sent right back to square one until you get through quite a few screens. It took almost an hour's play before I got beyond the eighth or ninth screen, which appears to be the one at which your point of reincarnation moves on.

This could be a feature – if the rest of the game is as difficult then it'll give you many hours of play – but I think most people might have given up before they ever reach the end.

Graphically the game is quite good, it uses the multicoloured Mode 0 to some effect, but this does rather mean that the definition of the ship, particularly when travelling diagonally, is not brilliant. Diagonal travel seems to be far slower than one would expect, which is very useful for accurate manoeuvring.

The sound will appeal to anyone interested in acoustic research – it consists almost entirely of white noise, a bit of a shame that the firing of the bullets or the explosions on impact couldn't have been given more life with a better thought-out sound effect. I wonder if there is more melodious accompaniment later in the game, as the list of credits for the game makes reference to music by Fred Grey – the genius who programmed the music for Never Ending Story.

Overall I have to say that this game wasn't too impressive, the idea it is based on seems rather close to one originally used in a game called The Prize and it hasn't improved much since that appeared.

PING PONG

I ask you, is Ping Pong the right name for a serious table tennis simulation?

I think everybody has had least one go at whopping a little plastic sphere across an oversized green dining table.

Select a level between one and five and play. This is the tricky bit. The screen shows you a player's eye view of a table tennis table in glorious Mode 0, 3D graphics. At both ends of table, disembodied hands are holding blobs. Sorry, did I say blobs? I meant bats.

You get first service. The player who reaches eleven points, two points clear, wins. To serve, move left or right and push the joystick forward, which throws the ball up. The minute the ball is in the air, control changes. Moving the joystick left and right causes the hand to attempt different shots. Left does a drive return, which is a fast shot. Right does a cut which is a slow shot.

When returning the ball the hand moves to a suitable position to make the shot. It gets a bit confusing here, and if you've been used to a lifetime of using the joystick to move around the screen, you'll need to adjust to being moved to the right position by the program. If you take a shot, the left/right movement stops. So taking a shot too early will cause you to lose your position over the ball.

The programmers have really succeeded in simulating the basics of table tennis. It is a real triumph to have transferred complex manual control to a few joystick commands.



AUTHOR IMAGINE
PRICE £8.95

GRAPHICS	16	FIRST IMPRESSION	1
SOUND	10	LASTING IMPRESSION	15
POLISH	18	VALUE	15

COMMENT Not for the unco-ordinated

PANZADROME

This is unashamedly called by the makers: "A game of mindless destruction".

The game is the old tank battle on a big map. That's the very old one – the one that looks on from above. But quite a few changes have been made. The tank now comes in the form of a construction kit. As with my brother's Lego, the bits are hidden all over the place. To glue the bit you have found on to your tank, you merely find a factory and stroll into it.

Your tank starts off as a pretty mundane affair, more of a scout car than a tank, really. Undaunted, you cruise on out of the factory – straight into an enemy tank.

These are viscious little beggars which try to put an 80mm megawhak cannon shell into your armour-plating, even if you are on the other side of a wall. If you shoot them, they explode, leaving a huge crater. So they're more of a nuisance dead than alive because you can't climb over the hole. If you are surrounded by holes, this is just real tough. The only way out is to hit the Q key and end it all.

Other wholesome things lie in wait, like mines (you spot these on a scanner) and gun turrets which sometimes need a mortar to take out.

Rooting around in the maze reveals useful add-ons (sorry, not 464-compatible ones) such as Polycrete (fills holes), mortars, mines and the whole range from the DIY tank builder's body-shop.

I will give this one the status of "challenging", and tell those concerned that they might make their sprites a bit bigger next time. Apart from that, it ain't bad for some mindless destruction, probably why they gave it to me for review.



AUTHOR ARIOLA SOFT
PRICE £7.95

GRAPHICS	14	FIRST IMPRESSION	8
SOUND	12	LASTING IMPRESSION	10
POLISH	10	VALUE	12

COMMENT One man and his tank

RAILWAY GAMES

Dee-Kay Systems have successfully been selling software since 1983. Due to demand, and the great success of Amstrad machines we now offer you on tape or disc our very popular Railway Simulations.

We have chosen one of our successful Rail Traffic Controller games to be our first Amstrad production.

R.T.C. Penzance

We put you in charge of all movements at this busy holiday terminal on a summer Saturday in 1984, despatching and accepting trains from dawn until dusk.

Incoming trains could well be late and locomotives may need fuel, servicing or more serious attention, you must deal with these situations promptly as locomotive availability is at a premium.

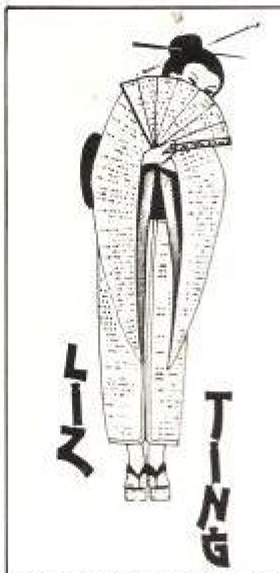
Trains need to be brought from and despatched to sidings and likewise locomotives to and from the engine shed. These are just some of the movements you will encounter in this game.

You are monitored on your proficiency as a rail traffic controller and given a performance rating ranging from excellent to disastrous.

Available on tape at **£8.50** or disc at **£12.50**
Also availabe on tape only for the BBC, Commodore 64 and Spectrum at **£8.50**

Available from: DEE-KAY SYSTEMS
Dept. ACU, 18 Salford Close, Woodrow South, Redditch, Worcs B98 7UN.

This means YOU!



We want lots of shortish programs for our readers to type in. They don't have to be games – we just have a preference for them. They can be anything that we find interesting. The things we don't find interesting are biorythm programs, pools predictors, simple databases, or anything to do with quadratic equations – unless they are written in one line, cellotaped to half a million quid or draw a pretty picture on the screen. Remember that you are writing a program for publication. Make your program easy to debug. Don't include unlistable characters in the program. Document start addresses and length of code when using machine code. Send the program on disc or cassette and include a SAE if you want it back. Don't include commands that work only on one particular machine.

Now you know what to do, get cracking!
Send off your program today to:

Liz Ting Amstrad Computer User 169 Kings Road Brentwood CM14 4EF

Lightwave



TREAT YOUR COMPUTER TO HIGH QUALITY, WEST GERMANY CABLES AND ACCESSORIES.

"THE STICK" JOYSTICK	464/664/6128	£12.99
PRINTER CABLE (2M)	464/664/6128	£13.95
EXT. MONITOR CABLES (2M)	464	£5.05
EXT. MONITOR CABLES (2M)	664/6128	£6.75
STEREO CABLE 2 x PHONO (2M)	464/664/6128	£4.15
STEREO CABLE 5-PIN DIN (2M)	464/664/6128	£4.15
JOYSTICK EXT. CABLE 9-PIN D TYPE (2M)		£3.25
JOYSTICK ADAPTOR	464/664/6128	£4.55
DISK DRIVE CABLE (2M)	464/664/6128	£4.35
DISC DRIVE EXT. CABLE (2M)	464/664/6128	£4.35

DUST COVERS

KEYBOARD	464	£6.75
MONITOR GREEN	464/664/6128	£8.95
MONITOR COLOUR	464/664/6128	£8.95
DISC DRIVE DDI-1, FD-1	464/664/6128	£4.95
PRINTER NLQ 401		£5.95
KEYBOARD	664	£7.35
KEYBOARD	6128	£7.35

SUPERB ANTI-GLARE SCREENS COLOUR/ MONO, 12" + 14" FROM £18.95

ASK YOUR LOCAL DEALER OR SEND DIRECT.

PLEASE ADD £1.00 FOR P + P CHEQUES AND P.O.s TO:

LIGHTWAVE LEISURE LTD
DEPT AU5. P.O. BOX 23
WALLASEY, MERSEYSIDE L44 1EW
051-639 5050

Access

AMSTRAD GRAND SALE

ELECTRO FREDDY	£2.95	GREMLINS	£3.95
ROLAND GOES DIGGING	£2.95	ALEX HIGGINS WORLD POOL	£3.95
SPANNERMAN	£2.95	ALEX HIGGINS SNOOKER	£3.95
SPLAT	£2.95	MASTER CHESS	£3.95
AMSGOLF	£2.95	TRIPODS	£4.25
ALIEN BREAK IN	£2.95	PYJAMARAMA	£4.25
ATOM SMASHER	£2.95	HERBERTS DUMMY RUN	£4.25
JET BOOT JACK	£2.95	EVERYONES A WALLY	£4.25
GEMS OF STRADUS	£2.95	AMERICAN FOOTBALL	£4.95
SPACE HAWKS	£2.95	BOUNTY BOB STRIKES BACK	£4.95
CRAZY GOLF	£2.95	BEACH HEAD	£4.95
CUBIT	£2.95	RAID!!	£4.95
PUNCHY	£2.95	ALIEN 8	£5.95
LASER WARP	£2.95	SABRE WULF	£5.95
ASTRO ATTACK	£2.95	STEVE DAVIS SNOOKER	£6.95
HAUNTED HEDGES	£2.95	HOME BUDGET	£8.95
STOCK MARKET	£2.95		
CLASSIC ADVENTURE	£2.95		
3D INVADERS	£2.95		
CODENAME MATT	£2.95		
SUPERPIPE LINE II	£2.95		
BLAGGER	£2.95		
DETECTIVE	£2.95		
HOUSE THAT JACK BUILT	£2.95		
LUCKY FRUITS	£2.95		
HARRIER ATTACK	£2.95		
MUTANT MONTY	£2.95		
CODENAME MATT II	£3.50		
VIEW TO A KILL	£3.95		
FOREST AT WORLDS END	£3.95		
HEROES OF KARN	£3.95		
JEWELS OF BABYLON	£3.95		
CHOPPER SQUAD	£3.95		
MESSAGE FROM ANDROMEDA	£3.95		
CHUCKIE EGG	£3.95		
HUNTER KILLER	£3.95		
STAR COMMANDO	£3.95		
HUNCHBACK	£3.95		
ATOM SMASHER	£3.95		
HOME RUNNER	£3.95		
MANIC MINER	£3.95		
FU KUNG IN LAS VEGAS	£3.95		

PACK INC.

SHIP OF DOOM
INCA CURSE
ESPIONAGE ISLAND
PLANET OF DEATH
£10.95 or £ 2.95 each

PERIPHERALS

AZIMUTH HEAD ALIGNMENT TAPE (INC CHOPPER SQUAD)	£7.95
QUICK SHOT II JOYSTICK	£7.95
AMSTRAD TAPE LEADS (SUITABLE FOR 128 3 JACK PLUGS)	£3.50
AMSTRAD DISCS	£4.75 each
REMOTE CONTROL R.R.P	£29.95
WIRELESS JOYSTICKS FOR 2 PLAYERS – OUR PRICE	£14.95 (£2.00 p&p)

PLEASE STATE FOR AMSTRAD IN ORDER

Anything currently available in software or peripherals we can supply – just phone us for a quote

VISA

LOGIC SALES LTD
6 Midgate · Peterborough · Cambs · PE1 1TN
24 hour ordering on 0733 313870

Attention ALL PCW8256 users

DOUBLE YOUR MEMORY

Upgrade the memory on your PCW8256 to a full 512k. Simple to install, no soldering or electronic expertise required. Upgrade chips and full instructions.

ONLY £49.95
inc. p&p cash with order only

Make cheques/postal orders payable to:
A. Milosevic

Please allow 21 days for delivery.
We also offer a custom software service for the PCW8256. All enquiries welcome.

Milo Hedge Consultancy and Software Services
62 Tyn y Cae, Alltwen, Pontardawe, West Glamorgan SA8 3DL.

FULLY EXPANDABLE INTERFACE

FOR THE **AMSTRAD 464/664/6128**

- Dual RS 232 ● 4 Sideways ROM Sockets
- 8 Bit Printer Port ● 8 Bit User Port **£83.95**
- Through Expansion Socket ● Software on ROM

4 SIDEWAYS ROM SOCKETS UNIT with Through Expansion Socket	**£31.05**
3" Disc Box of 10	**£39.75**
SIMPLE ACCOUNTS-Book Keeping (Disc)	**£34.95**
PRO-ED/A Professional Text Editor (Disc)	**£35.00**

Write/Phone for further details:

PANDA ELECTRONICS LIMITED
64 Harding Way, Cambridge CB4 3RR
Telephone: (0223) 354887
All prices are inclusive of VAT and P&P

Dealers Enquiries Welcome



SPECIAL DELIVERY:

Subscriptions

Cheap discs WOW!

Discs are essential to anyone with an Amstrad disc drive so if you own a DD1-1, CPC 664, CPC 6128, PCW 8256 or even a PCW 8512 you will be interested in this special offer.

Our discs cost less than £2.74 each.

You could pay as much as twice that – the usual price is around £4 per disc. "There must be a catch". Yes, there is – you can only buy four discs at this special rate and you can only qualify for the offer when you subscribe to *Amstrad Computer User*. This means that for the bargain price of £22.95 you get:

- Four 3in CF-2D discs and 12 issues of *Amstrad Computer User*, full of programs, listings, reviews and articles to help you make the most of your computer and discs. For overseas readers the prices are £24.95 for subscribers within Europe and £26.95 for readers outside Europe.

Cheap games WOW!

Maybe you don't have a disc drive. Well, there is no need for you to be left out of the special offer bonanza. Ping Pong is the latest game from Imagine. *You can save over £5 when you subscribe.*

There is a full review in this issue – don't miss it.

DK'Tronics RAM packs and Silicon disc

The DK'Tronics RAM expansion system upgrades your hardware from a 464 to a 6128 and beyond. By simply plugging a 64k RAM pack on to the back of your Arnold you can run programs like Masterfile 6128 and Tasword 6128. The 256k RAM pack will allow you to perform some stunning tricks from your own programs.

The units come with software which allows you to store large amounts of data, whole screens or just small areas of text in the extra memory. You can easily write programs which have trendy windows, replacing any screen data which had been overwritten.

The Silicon disc provides a second or third disc drive for your computer system. PCW 8256 owners will know how useful the M: disc is, now CPC owners can benefit from a faster, electronic disc.

Of course the data is lost when you switch off – but not if you press Control, Shift and Escape. The RAM disc works with all Amsdos disc commands and from CP/M 2.2.

	Usual retail price	Special offer price	What YOU save
CPC464/664 64k RAMpack	£49.95	**£45.95**	**£5**
CPC 464/664 256k RAMpack	£99.95	**£89.95**	**£10**
CPC 6128 256k RAMpack	£99.95	**£89.95**	**£10**
CPC 464/664 Silicon disc	£99.95	**£89.95**	**£10**
CPC 6128 Silicon disc	£99.95	**£89.95**	**£10**

Binders

Amstrad Computer User is the ideal source of reference for every user of Amstrad computers. Keep your magazines tidy and in tip-top condition by using our top quality binder. The *Amstrad Computer User* binder holds 12 issues. Each binder is black with the *ACU* logo embossed in a bright red. Only £3.95.

Dustcovers

Keep your equipment free from dust and grime with an *Amstrad Computer User* dustcover, made from clear pliable vinyl and bound by strong red cotton and sporting the *ACU* logo.

CPC 464/664 keyboard cover £3.95
CPC 6128 keyboard cover £3.95
Green screen monitor cover £5.95
Colour screen monitor cover £5.95
PCW 8256 keyboard, monitor and printer set £11.95

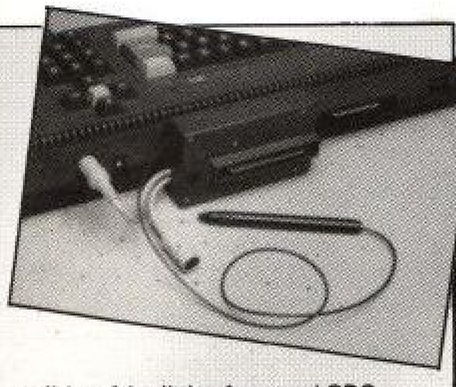
Back issues

1985 – Jan/Feb: *Colour switching for animation. Book reviews. Listings special.*
March: *Interrupt driven screen dump. Music explained. Fill routine.*
April: *Printer reviews. Joystick reviews. Proportional printing.*
May: *CPC 664 review. Virgin interview. Using 5¼ inch discs.*
June: *Maxam assembler review. Rock Hopper listing. CP/M user group feature.*
July: *664 (and 6128) to 464 conversion. Graphics toolkit listing. Speech synthesisers compared.*
August: *Screen designers compared. Technician Ted map. Knight Lore map and pokes.*
September: *Double height routine. Unsung heroes – MEJ. Crazy legs listing.*
October: *CPC 6128 review. Okimate 20 review. DK'tronics light pen.*
November: *Amgraph business graphics listing. DMP – 2000 review. Life program.*
December: *Everyone's a Wally map and pokes. Protext review. Enhanced trace utility.*
1986 – January: *Mode 3 revealed. Sorcery plus pokes and map. Shaded dump listing.*
February: *Brainstorm review. Graphics adventure creator. DK'tronics ram expansion review.*
March: *Communications survey. Laser Basic reviewed. The Music system examined.*
April: *Using the 6845. Screen flipping on the 6128. Graphic packages reviewed.*

Our exclusive reader offers

Dart lightpen

Special offer price . . . only £34.95



Usual price
£39.95

The Dart lightpen is compatible with all the Amstrad CPC computers. It gives pixel accuracy – even in Mode 2 – and will work on green or colour screens. In our opinion the Dart lightpen is the best we have tested. It uses advanced fibre optic technology and there are no wires in the pen itself.

The uses the pen can be put to are not restricted by the software which comes with it. You could produce your own program which gave a menu and allowed you to select options using the pen.

The Dart pen is supplied complete with a comprehensive drawing utility and is just the thing to turn you into a Rembrandt and your screen into a canvas.

You can save £5 by buying the Dart lightpen through ACU.

Volex Teletext adapter

Out in the airwaves above your house there is a collection of Amstrad programs being broadcast the whole time. You can pull them in and give them a nice warm home inside your CPC with the Volex teletext adapter. This takes the signals which produce Ceefax and Oracle and turns them into pictures and programs for your computer.

By using the special page command you can write programs which will read in a selection of your favourite pages. You could even write a program which will atomatically read share prices and plot a graph.

The Volex adapter is compatible with all Amstrad CPC computers and comes with the software in ROM.

The telesoftware on Channel 4 is free and can be downloaded whenever the station is transmitting. You will need an aeriel and a television licence. Now is the time to buy your Volex TTX2000a *because you can save £10 by buying it through ACU.*

Usual price £125

Special offer price £115

Tapes/Discs

Tapes contain all the major listings from *Amstrad Computer User.* Discs offer better value for money as they also contain public domain software from the CP/M users' group. Tapes cost £3.50; discs £6.50. Contents of the latest issues included:

JANUARY: Mode 3, how to use the Amstrad's secret 8k screen mode.
Sorcery plus pokes and sprite editor.
Shaded dump utility for Epson printers.
Pak Caverns – machine code and Basic game.

FEBRUARY: Animation: simple graphic displays.
Roland takes a running jump game and screen designer.
Galaxians Revenge. Space shoot-em-up.

MARCH: Roland takes a running jump source code.
Racer – prize winning listing.

APRIL: Animator, an advanced cartooning program.
Re-defined characters for the PCW 8256.

AMSTRAD COMPUTER USER

ORDER FORM

Offers subject to availability Valid to 31.5.86
All prices include postage packing & VAT.
All overseas items despatched by air mail.

Subscription

		(✓)	£ p
UK and Eire £12	8000		
Europe £25	8001		
Overseas £40	8002		

Subscription offers

Four 3" discs	£10.95*	8115	
Ping Pong tape	£3.50†	8116	

*Europe add £2. Overseas add £4
†Europe/Overseas add £2

Backnumbers £1.25 each

Jan/Feb '85	8003	October	8011
March	8004	November	8012
April	8005	December	8013
May	8006	January '86	8014
June	8007	February	8015
July	8008	March	8016
August	8009	April	8017
September	8010		

Tapes & Discs

Tapes £3.50; Discs £6.50

		Tape	Disc
January '86	8044/45		
February '86	8046/47		
March '86	8048/49		
April '86	8050/51		
May '86	8052/3		

Dart lightpen

£34.95 8113

Volex Teletext adapter

UK only £115 8114

ACU Dust-covers

CPC 464/664 keyboard 8100
CPC 6128 keyboard 8101
£3.95 UK; £4.50 Overseas

CPC range green screen 8102
CPC range colour monitor 8103
£5.95 UK; £7.45 Overseas

PCW 8256 keyboard, monitor and printer set 8104
£11.95 UK; £14.20 Overseas

ACU Binders

£3.95 UK
£6.95 Europe
£10.95 Overseas 8106

DK'Tronics RAM Expansions

CPC 464/664 64k Rampack	£45.95	8107
CPC 464/664 256k Rampack	£89.95	8108
CPC 6128 256k Rampack	£89.95	8110
CPC 464/664 Silicon Disc	£89.95	8111
CPC 6128 Silicon Disc	£89.95	8112

European and Overseas readers,
please add £2 per item unless otherwise indicated TOTAL

Send to
Amstrad Computer User,
FREEPOST,
36 St Petersgate,
Stockport SK1 1HL.

Telephone orders 061-429 7931 *24 hours*
Enquiries 061-480 0171 *9am-5pm*

Please indicate method of payment ( )

☐ Access/Mastercharge/Eurocard

☐ Barclaycard/Visa Expiry date /

☐ Cheque PO made payable to Amstrad Computer User

Name

Address

Please allow up to 28 days for delivery ACU5



What it offers the Amstrad user . . .

Electronic mail is much cheaper than the post

Sending mailbox messages to other subscribers, whose numbers are rapidly growing, is the cheapest form of communication possible. You can send a message of any length to another mailbox for less than the cost of a first-class stamp. And it doesn't cost a penny more to send the same message to 500 different mailboxes! Even a message sent to a mailbox on the other side of the world only costs 30p.

The biggest bulletin board of them all

The number of bulletin boards is growing rapidly. The only snag is that the vast majority are single-user boards – which means lots of other people are also trying to make contact and all too often all you get is the engaged tone. But with the MicroLink bulletin board there is no limit to the number of people using it at the same time. And no limit to the number of categories that can be displayed on the board.

Give your micro mainframe power

With MicroLink your micro becomes a terminal linked directly to the Telecom Gold mainframe computer, and able to tap its tremendous power and versatility. Right away you'll be able to use giant number-crunching programs that can only run on a mainframe.

The mailbox that is always open

MicroLink is in operation 24 hours a day, every day. That means you can access your mailbox whenever you want, and from wherever you are . . . home, office, airport – even a hotel bedroom or golf club! No-one needs to know where you are when you send your message.

We're only a local phone call away

The majority of MicroLink subscribers can connect to our mainframe computer in London by making a local phone call. This is possible because they use British Telecom's PSS system, which has access points all over Britain. A local phone call is all you need, too, for direct access via MicroLink to all the other countries belonging to the international Dialcom system.

Telemessages – at a third off

The modern equivalent of the telegram is the telemessage. Send it before 10pm and delivery is guaranteed by first post the following day (except Sunday). The service was intended for people phoning their message to the operator, which costs £3.50 for 50 words. But you can now use it via MicroLink, for only £1.25 for up to 350 words! For an extra 65p your message can be delivered in an attractive greetings card.

Go teleshopping on your micro

With MicroLink you can study the British Rail timetable – and then buy your ticket in advance. You can book theatre tickets. And even order a bouquet of flowers. It's all part of the teleshopping revolution!

Send and receive telex messages

With MicroLink you can turn your micro into a telex machine, and can send and receive telex messages of any length. You will be able to communicate directly to 96,000 telex subscribers in the UK, 1¼ million worldwide – and even with ships at sea via the telex satellite network. Business people can now send and receive telexes after office hours, from home or when travelling.

What does it all cost?

Considering all the services you have on tap, MicroLink is remarkably inexpensive. You pay a once-only registration fee of £5, and then a standing charge of just £3 a month. On-line costs are 3.5p a minute (between 7pm and 8am) or 11p a minute during office hours. There is an additional 2.5p a minute PSS charge if you are calling from outside the 01- London call area. Charges for telex, telemessages and storage of files are given on the next page.

How much it costs to use MicroLink

Initial registration fee: £5.

Standing charge: £3 per calendar month or part.

Connect charge: 3.5p per minute or part – cheap rate; 11p per minute or part – standard rate.
Applicable for duration of connection to the Service. Minimum charge: 1 minute.
Cheap rate is from 7pm to 8am, Monday to Friday, all day Saturday and Sunday and public holidays; Standard rate is from 8am to 7pm, Monday to Friday, excluding public holidays.

Filing charge: 20p per unit of 2,048 characters per month.
Applicable for storage of information, such as telex, short codes and mail files. The number of units used is an average calculated by reference to a daily sample.

Information Databases: Various charges.
Any charges that may be applicable are shown to you before you obtain access to the database.

MicroLink PSS service: 2.5p per minute or part (300 baud); 3p per minute or part (1200/75 baud).
Only applies to users outside the 01-London call area.

Telex registration: £10.

Outgoing telex: 5.5p per 100 characters (UK); 11p per 100 (Europe); 18p per 100 (N. America); £1.25 per 400 (Rest of world); £2.75 per 400 (Ships at sea).
Deferred messages sent on the night service are subject to a 10 per cent discount.

Incoming telex: 50p for each correctly addressed telex delivered to your mailbox. Obtaining a mailbox reference from the sender incurs a further charge of 50p.
It is not possible to deliver a telex without a mailbox reference. If a telex is received without a mailbox reference the sender will be advised of non-delivery and asked to provide a mailbox address.
Each user validated for telex and using the facility will incur a charge of 6 storage units a month. Further storage charges could be incurred depending on the amount of telex storage and the use made of short code and message file facilities.

Telemessages: £1.25 for up to 350 words.
Telemessages can be sent with an illustrated greetings card for 65p extra.

Radiopaging: No charge.
If you have a BT Radiopager you can be paged automatically whenever a message is waiting in your mailbox.

International Mail: For the first 2,048 characters – 20p to Germany and Denmark; 30p to USA, Australia, Canada, Singapore, Hong Kong and Israel. For additional 1,024 characters – 10p; 15p.
These charges relate to the transmission of information by the Dialcom service to other Dialcom services outside the UK and the Isle of Man. Multiple copies to addresses on the same system host incur only one transmission charge.

Billing and Payment: All charges quoted are exclusive of VAT. Currently all bills are rendered monthly.

Software over the telephone

MicroLink is setting up a central store of software programs which you'll be able to download directly into your micro. The range will include games, utilities, educational and business programs, and will cover all the most popular makes of micros.

Talk to the world – by satellite

MicroLink is part of the international Dialcom network. In the USA, Australia and a growing number of other countries there are many thousands of users with electronic mailboxes just like yours. You can contact them just as easily as you do users in Britain – the only difference is that the messages from your keyboard go speeding around the world via satellite.

What you need to access MicroLink

You must have three things in order to use MicroLink: a computer (it can be any make of micro, hand-held device or even an electronic typewriter provided it has communications facilities), a modem (it can be a simple Prestel type using 1200/75 baud, or a more sophisticated one operating at 300/300 or 1200/1200 baud), and appropriate communications software.

MicroLink

in association with

TELECOM GOLD*

Application Form

I/We hereby apply to join MicroLink

(✓) ☐ I enclose my cheque for £5 payable to Database Publications as registration fee to MicroLink.

(✓) ☐ I also wish to use Telex. I authorise you to charge an additional £10 to my initial bill for validation.

☐ I confirm that I am over 18 years of age.

☐ I confirm that I accept the terms and conditions for the time being in force, a copy of which are available on request.

Signature ______________________

Date ______________________

FOR OFFICE USE ONLY:
Mailbox assigned ______________________
Start date ______________________
Password ______________________

SEND TO:
MicroLink
Database Publications
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY.

Name

Position

Company

Address

Postcode

Daytime telephone

Commencement of Service
Please indicate month of commencement ☐☐ 19 ☐☐
Allow 10 days for validation of mailbox

Payment
Whilst Database Publications Ltd is the supplier of all the services to you, the commission and billing thereof will be handled by Telecom Gold as agents for Database Publications Ltd.
Date of first payment to be on 15th of month following commencement.
Please complete billing authorisation form A, B or C below:

A. Direct Debiting Mandate *(Enter full postal address of Bank Branch)*
To

I/We authorise you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be debited thereto at the instance of British Telecommunications plc – TELECOM GOLD by Direct Debit. Bills are issued 10 days before debit is processed.

Name of Account to be debited

Account Number

B. Please debit my/our Access/Visa/*American Express account number
* *Overseas subscribers only*

I/We authorise you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be debited thereto at the instance of British Telecommunications plc – TELECOM GOLD. Bills are issued 10 days before charge is applied to your account.

Signature ______________________ Date ____________

C. Please invoice the company/authority.

(✓) ☐ If you select this option, which is ONLY AVAILABLE to government establishments and Public Limited Companies, you will be sent an authorisation form for completion which will require an official order number to accept unspecified amounts.

ZX SPECTRUM £7·95
COMMODORE 64 £7·95
AMSTRAD £8·95

PING PONG



Imagine Software (1984), 6 Central Street
Manchester M2 5NS. Tel: 061-834 3939. Telex: 669977

You can almost feel the tension of the big match breaking through the screen . . . the expectant crowd is almost on top of you! You return the service with a ***Top-spin Backhand,*** *then a* ***Forehand Back-spin,*** *the ball bounces high from your opponent's looping, defensive lob . . .* ***SMASH!*** *. . . a great shot opens the score . . . but this is only your first point! Play head to head or against the computer in this, Konami's first and best table-tennis simulation.*

Imagine Software is available from selected branches of: Boots, WHSMITH, John Menzies, **WOOLWORTH**, LASKYS, Rumbelows, Greens, Spectrum Shops and all good dealers.

The Least Significant Bit

The great discappearing act

When two Englishmen meet in the street, the topic of conversation used to be the weather. Now it's the availability of Amstrad 3in discs.

We've all been told the situation is "going to get" or is "getting" better for some time now. Since before Christmas in fact. At the time of writing it is near the end of March and all the promises have, as usual, proved to be as empty as Amstrad's warehouses.

Some fairly incredible stories have been concocted by way of excuses, not the least of which was the one about the two household-name Japanese manufacturers making a faulty batch of some 200,000 units. However, my money is on the scurrilous rumour that a boat was diverted to the US to support the launch of the PCW 8256 with Sears in the USA.

It's understandable that a Big Deal like that might be a good reason to let down your old chums in the UK, and almost forgivable were it not for the traders who 'phone up and harass software producers claiming to have a disc mountain of between 10 and 50 thousand discs at their disposal. All yours for only £3.50 a disc, squire.

ACU: Onwards and upwards

Summer is approaching fast. This is the first summer where a small business phenomenon like the PCW has been a feature on the computer dealers' landscape, and it will be fascinating to see just how seasonal the business is going to be.

The summer phenomenon could work both ways. With staff on holiday, maybe small firms will see computerisation as an opportunity to improve efficiency and so lessen the effects of the holiday periods. Many proprietors will also be able to count on the assistance of their kids to show them how to use the computers – as well as alleviate the boredom of the long summer holidays. As it happens, I never managed to get bored by school holidays, and don't understand those who do.

It would be nice to think that the non-entertainment sector of the business could maintain momentum. If you are a dealer, write and tell us your findings. You are welcome to use the ideas above in a local advertising campaign to stimulate some interest that might not otherwise occur.

ACU

ACU ADVERTISERS' INDEX

POWER BEHIND YOUR AMSTRAD







You can order by phone quoting your Barclaycard or Access number, orders are normally despatched in 24 hours.





DK Tronics products are available in all good computer stores. If you have any local problems obtaining them contact us directly.

dk'tronics

MANUFACTURERS OF POWERFUL PERIPHERALS

DK Tronics Limited
Englands Lane, Gorleston-on-Sea, Great Yarmouth, Norfolk NR31 6BE
Phone 0493 602926 (24 Hours), Telex 975408.